
SEMPER MEMORAN
Maxwell
of
Kirkconnell

ENCYCLOPÆDIA BRITANNICA;

OR, A

DICTIONARY

OF

ARTS, SCIENCES,

AND

MISCELLANEOUS LITERATURE;

Conſtructed on a PLAN,

BY WHICH

THE DIFFERENT SCIENCES AND ARTS

Are digeſted into the FORM of Diſtinct

TREATISES OR SYSTEMS,

COMPREHENDING

The HISTORY, THEORY, and PRACTICE, of each,
according to the Lateſt Diſcoveries and Improvements;

AND FULL EXPLANATIONS GIVEN OF THE

VARIOUS DETACHED PARTS OF KNOWLEDGE,

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A General HISTORY, *Ancient* and *Modern*, of the different Empires, Kingdoms, and States;

AND

An Account of the LIVES of the moſt Eminent Perſons in every Nation,
from the earlieſt ages down to the preſent times.

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ENCYCLOPÆDIA BRITANNICA.

Rana.

RANA, the frog, in zoology; a genus belonging to the order of amphibia reptilia. The body is naked, furnished with four feet, and without any tail. There are 17 species. The most remarkable are,

1. The temporaria, or common frog. This is an animal so well known, that it needs no description; but some of its properties are very singular.

Its spring, or power of taking large leaps, is remarkably great, and it is the best swimmer of all four-footed animals. Nature hath finely adapted its parts for those ends, the fore members of the body being very lightly made, the hind legs and thighs very long, and furnished with very strong muscles.

While in a tadpole state, it is entirely a water animal; the work of generation is performed in that element, as may be seen in every pond during spring, when the female remains oppressed by the male for a number of days.

The work of propagation is extremely singular, it being certain that the frog has not a *penis intrans*. There appears a strong analogy in this case between a certain class of the vegetable kingdom and those animals; for it is well known, that when the female frog deposits its spawn, the male instantaneously impregnates it with what we may call a *farina fœcundans*, in the same manner as the palm-tree conveys fructification to the flowers of the female, which would otherwise be barren.

As soon as the frogs are released from their tadpole state, they immediately take to land; and if the weather has been hot, and there fall any refreshing showers, you may see the ground for a considerable space perfectly blackened by myriads of these animalcules, seeking for some secure lurking places. Some philosophers, not giving themselves time to examine into this phenomenon, imagined them to have been generated in the clouds, and showered on the earth; but had they, like our Derham, but traced them to the next pool, they would have found a better solution of the difficulty. See *Preternatural* RAINS.

As frogs adhere closely to the backs of their own species, so we know they will do the same by fish.—Walton mentions a strange story of their destroying pike; but that they will injure, if not entirely kill carp, is a fact indisputable, from the following relation. Not many years ago, on fishing a pond belonging to Mr Pitt of Encomb, Dorsetshire, great numbers of the carp were found each with a frog mounted on it, the hind legs clinging to the back, and the fore legs fixed in the corner of each eye of the fish, which were thin and greatly wasted, teized by carrying so disagreeable a load. These frogs Mr Pennant supposes to have been males disapppointed of a mate.

The croaking of frogs is well known; and from that in fenny countries they are distinguished by ludicrous titles: thus they are styled *Dutch nightingales*, and *Boston waites*.

Yet there is a time of the year when they become mute, neither croaking nor opening their mouths for a whole month: this happens in the hot season, and that is in many places known to the country people by the name of the *paddock moon*. It is said, that during that period their mouths are so closed, that no force (without killing the animal) will be capable of opening them.

These, as well as other reptiles, feed but a small space of the year. The food of this genus is flies, insects, and snails. Toads are said to feed also on bees, and to do great injury to those useful insects.

During winter, frogs and toads remain in a torpid state: the last of which will dig into the earth, and cover themselves with almost the same agility as the mole. See PHYSIOLOGY, n° 48 and note (B), and n° 52.

2. The esculenta, or edible frog, differs from the former, in having a high protuberance in the middle of the back, forming a very sharp angle. Its colours are also more vivid, and its marks more distinct; the ground colour being a pale or yellowish green, marked with rows of black spots from the head to the rump.—This, and (Mr Pennant thinks) the former, are eaten. He has seen in the markets at Paris whole hampers full, which the venders were preparing for the table, by skinning and cutting off the fore-parts, the loins and legs only being kept; but his strong dislike to these reptiles prevented a close examination into the species.

3. In the country of Pennsylvania, and some other parts of North America, there is a very large species of frogs called the *bull-frog*, or *rana ocellata*. Their irides are of a dusky red, surrounded with a yellow ring. The auricles are covered with a thin circular skin, which forms a spot behind each eye. They have four toes on the fore-feet, and five palmated toes behind. Their colour is a dusky brown, mixed with yellowish green, and spotted with black. The belly is yellowish, and faintly spotted. These make a monstrous roaring noise like a bull, only somewhat more hoarse. Their size is superior to that of any other of the genus, and they can spring forward three yards at a leap. By this means they will equal in speed a very good horse in its swiftest course. Their places of abode are ponds, or bogs with stagnant water; but they never frequent streams. When many of

Rana.

of them are together, they make ſuch a horrid noiſe, that two people cannot underſtand each other's ſpeech. They croak all together, and then ſtop for a little and begin again. It ſeems as if they had a captain among them: for when he begins to croak, all the others follow; and when he ſtops, they alſo become ſilent. When this captain gives the ſignal for ſtopping, you hear a note like *poop* coming from him. In the day-time they ſeldom make any great noiſe, unleſs the ſky is covered; but in the night-time they may be heard at the diſtance of a mile and an half. When they croak, they are commonly near the ſurface of the water, under the buſhes, and have their heads out of the water. By going ſlowly, therefore, one may get up almoſt quite cloſe to them before they go away. As ſoon as they are quite under water, they think themſelves ſafe, though it be ever ſo ſhallow. Theſe creatures kill and eat young ducklings and goſlings, and ſometimes carry off chickens that come too near the water; when beaten, they cry out almoſt like little children. As ſoon as the air begins to grow a little cool in autumn, they hide themſelves under the mud in the bottom of ſtagnant waters, and lie there torpid during the winter. As ſoon as the weather grows mild towards ſummer, they begin to get out of their holes and croak. They are ſuppoſed by the people of Virginia to be the purifiers of waters, and are reſpected as the genii of the fountains. Some of them were brought to England alive ſeveral years ago.

4. The bufo, or toad, is the moſt deformed and hideous of all animals. The body is broad; the back flat, and covered with a pimply duſky hide; the belly large, ſwagging, and ſwelling out; the legs ſhort, and its pace laboured and crawling; its retreat gloomy and filthy: in ſhort, its general appearance is ſuch as to ſtrike one with diſguſt and horror. Yet it is ſaid by thoſe who have reſolution to view it with attention, that its eyes are fine; to this it ſeems that Shakeſpeare alludes, when he makes his Juliet remark,

Some ſay the lark and loathed toad change eyes;

As if they would have been better beſtowed on ſo charming a ſongſter than on this raucous reptile.

But the hideous appearance of the toad is ſuch as to make this one advantageous feature overlooked, and to have rendered it in all ages an object of horror, and the origin of moſt tremendous inventions. Ælian makes its venom ſo potent, that baſiliſk-like it conveyed death by its very look and breath; but Juvenal is content with making the Roman ladies who were weary of their huſbands form a potion from its entrails, in order to get rid of the good man. This opinion begat others of a more dreadful nature; for in after-times ſuperſtition gave it preternatural powers, and made it a principal ingredient in the incantations of nocturnal hags.

This animal was believed by ſome old writers to have a ſtone in its head fraught with great virtues medical and magical: it was diſtinguiſhed by the name of the reptile, and called the *toad-ſtone*, *buſonites*, *crapaudine*, *krottenſtein*; but all its fancied powers vaniſhed on the diſcovery of its being nothing but the foſſil tooth of the ſea-wolf ‡, or of ſome other flat-toothed fiſh, not unfrequent in our iſland as well as ſeveral other countries.

‡ See *Ancrrhicus*.

But theſe fables have been long exploded. And as to the notion of its being a poiſonous animal, it is probable that its exceſſive deformity, joined to the faculty it has of emitting a juice from its pimples, and a duſky liquid from its hind parts, is the foundation of the report.

That it has any noxious qualities there ſeem to have been no proofs in the ſmalleſt degree ſatisfactory, tho' we have heard many ſtrange relations on that point.—On the contrary, there have been many who have taken them in their naked hands, and held them long without receiving the leaſt injury: it is alſo well known that quacks have eaten them, and have beſides ſqueezed their juices into a glaſs and drank them with impunity. We may ſay alſo, that theſe reptiles are a common food to many animals; to buzzards, owls, Norfolk plovers, ducks, and ſnakes, who would not touch them were they in any degree noxious.

So far from having venomous qualities, they have of late been conſidered as if they had beneficent ones; particularly in the cure of the moſt terrible of diſeaſes, the *cancer*, by ſuction: (See *Britiſh Zoology*, vol. iii. Append. p. 389, *et ſeq.*) But, from all circumſtances, as Mr Pennant obſerves, they ſeem only to have rendered a horrible complaint more loathſome.

The moſt full information concerning the nature and qualities of this animal is contained in the following letters from Mr Arſcott and Mr Pittfield to Dr Milles. "It would give me great pleaſure (ſays Mr Arſcott) to be able to inform you of any particulars worthy Mr Pennant's notice, concerning the toad who lived ſo many years with us, and was ſo great a favourite. The greateſt curioſity in it was its becoming ſo remarkably tame. It had frequented ſome ſteps before the hall-door ſome years before my acquaintance commenced with it, and had been admired by my father for its ſize (which was of the largeſt I ever met with), who conſtantly paid it a viſit every evening. I knew it myſelf above 30 years; and by conſtantly feeding it, brought it to be ſo tame, that it always came to the candle, and looked up as if expecting to be taken up and brought upon the table, where I always fed it with inſects of all ſorts; it was fondeſt of fleſh maggots, which I kept in bran; it would follow them, and, when within a proper diſtance, would fix its eye, and remain motionleſs for near a quarter of a minute, as if preparing for the ſtroke, which was an inſtantaneous throwing its tongue at a great diſtance upon the inſect, which ſtuck to the tip by a glutinous matter: the motion is quicker than the eye can follow (A).

"I always imagined that the root of its tongue was placed in the forepart of its under jaw, and the tip towards its throat, by which the motion muſt be a half circle; by which, when its tongue recovered its ſituation, the inſect at the tip would be brought to the place of deglutition. I was confirmed in this by never obſerving any internal motion in its mouth, excepting one ſwallow the inſtant its tongue returned. Poſſibly I might be miſtaken; for I never diſſected one, but contented

(A) This rapid capture of its prey might give occaſion to the report of its faſcinating powers, Linnæus ſays, *Inſecta in fauces fuſcino revocat.*

tented myſelf with opening its mouth, and ſlightly inſpecting it.

"You may imagine, that a toad, generally deteſted, (although one of the moſt inoffenſive of all animals), ſo much taken notice of and befriended, excited the curioſity of all comers to the houſe, who all deſired to ſee it fed; ſo that even ladies ſo far conquered the horrors inſtilled into them by nurſes, as to deſire to ſee it. This produced innumerable and improbable reports, making it as large as the crown of a hat, &c. &c."

The following are anſwers from the ſame gentleman to ſome queries propoſed by Mr Pennant.

"*Firſt*, I cannot ſay how long my father had been acquainted with the toad before I knew it; but when I firſt was acquainted with it, he uſed to mention it as the old toad I've known ſo many years; I can anſwer for 36 years.

"*Secondly*, No toads that I ever ſaw appeared in the winter ſeaſon. The old toad made its appearance as ſoon as the warm weather came, and I always concluded it retired to ſome dry bank to repoſe till the ſpring. When we new-lay'd the ſteps, I had two holes made in every third ſtep, with a hollow of more than a yard long for it, in which I imagine it ſlept, as it came from thence at its firſt appearance.

Thirdly, It was ſeldom provoked: neither that toad, nor the multitudes I have ſeen tormented with great cruelty, ever ſhowed the leaſt deſire of revenge, by ſpitting or emitting any juice from their pimples.—Sometimes, upon taking it up, it would let out a great quantity of clear water, which, as I have often ſeen it do the ſame upon the ſteps when quite quiet, was certainly its urine, and no more than a natural evacuation.

Fourthly, A toad has no particular enmity for the ſpider; he uſed to eat five or ſix with his millepedes (which I take to be its chief food) that I generally provided for it before I found out that fleſh maggots, by their continual motion, was the moſt tempting bait; but, when offered, it eat blowing flies and humble bees that come from the rat-tailed maggot in gutters, or in ſhort any inſect that moved. I imagine, if a bee was to be put before a toad, it would certainly eat it to its coſt; but as bees are ſeldom ſtirring at the ſame time that toads are, they can ſeldom come in their way, as they ſeldom appear after ſun-riſing or before ſun-ſet. In the heat of the day they will come to the mouth of their hole, I believe, for air. I once from my parlour window obſerved a large toad I had in the bank of a bowling-green, about 12 at noon, a very hot day, very buſy and active upon the graſs; ſo uncommon an appearance made me go out to ſee what it was, when I found an innumerable ſwarm of winged ants had dropped round his hole, which temptation was as irreſiſtible as a turtle would be to a luxurious alderman.

"*Fifthly*, Whether our toad ever propagated its ſpecies, I know not; rather think not, as it always appeared well, and not leſſened in bulk, which it muſt have done, I ſhould think, if it had diſcharged ſo large a quantity of ſpawn as toads generally do. The females that are to propagate in the ſpring, I imagine, inſtead of retiring to dry holes, go into the bottom of ponds, and lie torpid among the weeds: for to my great ſurpriſe, in the middle of the winter, having for amuſement put a long pole into my pond, and twiſted it till it had gathered a large volume of weed, on taking it off I found many toads; and having cut ſome aſunder with my knife, by accident, to get off the weed, found them full of ſpawn not thoroughly formed. I am not poſitive, but think there were a few males in March; I know there are 30 males (B) to one female, 12 or 14 of whom I have ſeen clinging round a female: I have often diſengaged her, and put her to a ſolitary male, to ſee with what eagerneſs he would ſeize her. They impregnate the ſpawn as it is drawn (C) out in long ſtrings, like a necklace, many yards long, not in a large quantity of jelly, like frogs ſpawn.

(B) Mr John Hunter has aſſured me, that during his reſidence at Belleiſle, he diſſected ſome hundreds of toads, yet never met with a ſingle female among them.

(C) I was incredulous as to the *obſtetrical* offices of the male toad; but ſince the end is ſo well accounted for, and the fact eſtabliſhed by ſuch good authority, belief muſt take place.

Mr Demours, in the Memoirs of the French Academy, as tranſlated by Dr Templeman, vol. i. p. 371, has been very particular in reſpect to the male toad as acting the part of an *accoucheur*: His account is curious, and claims a place here.

"In the evening of one of the long days in ſummer, Mr Demours, being in the king's garden, perceived two toads *coupled together* at the edge of an hole, which was formed in part by a great ſtone at the top.

"Curioſity drew him to ſee what was the occaſion of the motions he obſerved, when two facts equally new ſurpriſed him. The *firſt* was the extreme difficulty the female had in laying her eggs, inſomuch that ſhe did not ſeem capable of being delivered of them without ſome aſſiſtance. The *ſecond* was, that the male was mounted on the back of the female, and exerted all his ſtrength with his hinder feet in pulling out the eggs, whilst his fore-feet embraced her breaſt.

"In order to apprehend the manner of his working in the delivery of the female, the reader muſt obſerve, that the paws of theſe animals, as well thoſe of the fore-feet as of the hinder, are divided into ſeveral toes, which can perform the office of fingers.

"It muſt be remarked likewiſe, that the eggs of this ſpecies of toads are included each in a membranous coat that is very firm, in which is contained the embryo; and that theſe eggs, which are oblong and about two lines in length, being faſtened one to another by a ſhort but very ſtrong cord, form a kind of chaplet, the beads of which are diſtant from each other about the half of their length. It is by drawing this cord with his paw that the male performs the function of a midwife, and acquits himſelf in it with a dexterity that one would not expect from ſo lumpiſh an animal.

"The preſence of the obſerver did not a little diſcompoſe the male: for ſome time he ſtopped ſhort, and threw

"Secondly, In [illegible] their food, I never saw any toad [illegible] to any plant (o).

"Thirdly, I [illegible] remember any person taking up [illegible] and myself; I do not know whether it had any particular attachment to us.

"Eighthly, In [illegible] end, I answer this last [illegible]. Had it not been for a tame raven, I make no doubt but it would have been now living; who one day [illegible] it at the [illegible] of its hole, pulled it out, and although I [illegible], pulled out one eye, and hurt it so, that [illegible] its living a twelvemonth it never [illegible], and had a difficulty of taking its food, making the mark for want of its eye: before that accident it had all the appearance of perfect health."

6. The rubeta, or natter-jack, frequents dry and sandy places: it is found on Putney common, and also near Revesby abbey, Lincolnshire. It never leaps, neither does it crawl with the slow pace of a toad, but its motion is liker to running. Several are found commonly together, and like others of the genus they appear in the evening. The upper part of the body is of a dirty yellow, clouded with brown, and covered with porous pimples of unequal sizes: on the back is a yellow line. The upper side of the body is of a paler hue, marked with black spots, which are rather rough. On the fore-feet are four divided toes; on the hind five, a little webbed. The length of the body is two inches and a quarter; the breadth, one and a quarter: the length of the fore-legs, one inch one-sixth; of the hind legs, two inches. We are indebted to Sir Joseph Banks, for this account.

7. The pipal, or Surinam toad, is more ugly than even the common one. The body is flat and broad; the head small; the jaws, like those of a mole, are extended, and evidently formed for rooting in the ground: the skin of the neck forms a sort of wrinkled collar: the colour of the head is of a dark chesnut, and the eyes are small: the back, which is very broad, is of a dirty grey, and seems covered over with a number of small eyes, which are round, and placed at nearly equal distances. These eyes are very different from what they seem: they are the animal's eggs, covered with their shells, and placed there for hatching. These eggs are buried deep in the skin, and in the beginning of incubation but just appear; and are very visible when the young animal is about to burst from its confinement. They are of a reddish, shining yellow colour; and the spaces between them are full of small warts, resembling pearls.

This is their situation previous to their coming forth; but nothing so much demands our admiration as the manner of their production. The eggs, when formed in the ovary, are sent, by some internal canals, which anatomists have not hitherto described, to lie and come to maturity under the bony substance of the back: in this state they are impregnated by the male, whose seed finds its way by pores very singularly contrived, and pierces not only the skin but the periosteum: the skin, however, is still apparently entire, and forms a very thick covering over the whole brood; but as they advance to maturity, at different intervals, one after another, the egg seems to start forward, and burgeons from the back, becomes more yellow, and at last breaks; when the young one puts forth its head: it still, however, keeps its situation until it has acquired a proper degree of strength, and then it leaves the shell, but still continues to keep upon the back of the parent. In this manner the pipal is seen travelling with her wonderous family on her back, in all the different stages of maturity. Some of the strange progeny, not yet come to sufficient perfection, appear quite torpid, and as yet without life in the egg: others seem just beginning to rise through the skin; here peeping forth from the shell, and there having entirely forsaken their prison: some are sporting at large upon the parent's back, and others descending to the ground to try their own fortune below. The male pipal is every way larger than the female, and has the skin less tightly drawn round the body. The whole body is covered with pustules, resembling pearls; and the belly, which is of a bright yellow, seems as if it were sewed up from the throat to the vent, a seam being seen to run in that direction. This animal, like the rest of the frog kind, is most probably harmless.

8. The water frog of Catesby has large black eyes, yellow irides, and long limbs: the upper part of the head and body is of a dusky green, spotted with black; and from each eye to the nose is a white line; and also a yellow line along the sides to the rump. They frequent rivulets and ditches, which they do not quit for the dry land. It is said they will spring five or six yards at a leap.

9. The rana arborea, or green tree frog of Catesby, is of a slender shape and bright green colour, marked on each side with a line of yellow: the eyes are black; the irides yellow; they have four toes before and five behind; at the end of each toe there is a round membrane, concave beneath, and not unlike the mouth of a leech. They lurk under the lower sides of leaves, even of the tallest trees, and adhere firmly, by means of the membranes at the ends of their toes, sticking to the smoothest surface: a looking-glass was held before one, at

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threw on the *curious impertinent* a fixed look that marked his disquietness and fear; but he soon returned to his work with more precipitation than before, and a moment after he appeared undetermined whether he should continue it or not. The female likewise discovered her uneasiness at the sight of the stranger, by motions that interrupted for a time the male in his operation. At length, whether the silence and steady posture of the spectator had dissipated their fear, or that the *case* was urgent, the male resumed his work with the same vigour, and successfully performed his function."

(o) This question rose from an assertion of Linnæus, that the toad delighted in filthy herbs. *Delectatur coitu, [illegible], fœtide fœnis.* The unhappy deformity of the animal seems to be the only ground of this as well as another misrepresentation, of its conveying a poison with its pimples, its touch, and even its breath. *Verrucæ tactu, inter venenata infausta tactu, arcentur.*

at four yards distance; it reached it at one leap, and stuck closely to it. At night these frogs make an incessant chirping, and leap from spray to spray in search of insects. This species is common to America and the warmer parts of Europe.

10. The land frog of Catesby has much the appearance of a toad: above it is grey or brown, spotted with dusky; below white, faintly spotted; the irides are red; and the legs short. They frequent the high-lands, and are seen most frequently in wet weather and in the hottest time of the day: they leap, feed on insects, particularly the fire-fly and ant. Sometimes the Americans bake and reduce this species to powder, which, mixed with orrice root, is taken as a cure for a tympany.

11. The cinereous frog has a gibbous, cinereous, and smooth back; the belly is yellow and granulated: on each side, from the nose to the rump, there is a white line; and there is the same on the outside of the thighs and legs; the toes are bullated at their ends. They inhabit Carolina.

RANAI, one of the Sandwich islands discovered by Captain Cooke, is about nine miles distant from MOWEE and MOROTOI, and is situated to the south-west of the passage between those two isles. The country towards the south is elevated and craggy; but the other parts of the island had a better appearance, and seemed to be well inhabited. It abounds in roots, such as sweet potatoes, *taro*, and yams; but produces very few plantains and bread-fruit trees. The south point of Ranai is in the latitude of 20° 46′ north, and in the longitude of 203° 8′ east.

RANCID, denotes a fatty substance that is become rank or musty, or that has contracted an ill smell by being kept close.

RANDIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is monophyllous; the corolla salver-shaped; the berry unilocular, with a capsular rind. There are two species, viz. the mitis and aculeata.

RANDOLPH (Thomas), an eminent English poet in the 17th century, was born in Northamptonshire 1605. He was educated at Westminster and Cambridge, and very early distinguished for his excellent genius; for at about nine or ten years of age he wrote the History of the Incarnation of our Saviour in verse. His subsequent writings established his character, and gained him the esteem and friendship of some of the greatest men of that age, particularly of Ben Johnson, who adopted him one of his sons in the muses. He died in 1631, and was honourably interred. He wrote, 1. The Muses Looking-glass, a comedy. 2. Amyntas, or the Impossible Dowry, a pastoral, acted before the king and queen. 3. Aristippus, or the Jovial Philosopher. 4. The Conceited Pedlar. 5. The Jealous Lovers, a comedy. 6. Hey for Honesty, down with Knavery, a comedy; and several poems.

RANDOM SHOT, in gunnery, is a shot made when the muzzle of a gun is raised above the horizontal line, and is not designed to shoot directly or point-blank.

The utmost random of any piece is about ten times as far as the bullet will go point-blank. The bullet will go fartheft when the piece is mounted to about 45° above the level range. See GUNNERY and PROJECTILES.

RANGE, in gunnery, the path of a bullet, or the line it describes from the mouth of the piece to the point where it lodges. If the piece lie in a line parallel to the horizon, it is called the *right* or *level range*: if it be mounted to 45°, it is said to have the *utmost range*; all others between 00 and 45° are called the *intermediate ranges*.

RANGER, a sworn officer of a forest, appointed by the king's letters patent; whose business is to walk through his charge, to drive back the deer out of the purlieus, &c. and to present all trespasses within his jurisdiction at the next forest-court.

RANK, the order or place assigned a person suitable to his quality or merit.

RANK, is a straight line made by the soldiers of a battalion or squadron, drawn up side by side: this order was established for the marches, and for regulating the different bodies of troops and officers which compose an army.

RANK and Precedence, in the army and navy, are as follow:

Engineers RANK. Chief, as colonel; director, as lieutenant-colonel; sub-director, as major; engineer in ordinary, as captain; engineer extraordinary, as captain-lieutenant; sub-engineer, as lieutenant; practitioner-engineer, as ensign.

Navy RANK. Admiral, or commander in chief of his majesty's fleet, has the rank of a field-marshal; admirals, with their flags on the main-top-mast-head, rank with generals of horse and foot; vice-admirals, with lieutenant-generals; rear-admirals, as major-generals; commodores, with broad pendants, as brigadier-generals; captains of post-ships, after three years from the date of their first commission, as colonels; other captains, as commanding post-ships, as lieutenant-colonels; captains, not taking post, as majors; lieutenants, as captains.

Rank between the Army, Navy, and Governors.

Army.	Navy.	Governors.
General in chief	Admiral in chief	Commander in chief of the forces in America
Generals of horſe	Admiral with a flag at the main-top-maſt	Captain-general of provinces
Lieutenant-generals	Vice-admirals	Lieutenant-generals of provinces
Major-generals	Rear-admirals	Lieutenant-governors and preſidents
Colonels	Poſt-captains of 3 years	Lieutenant-governors not commanding
Lieutenant-colonels	Poſt-captains	Governors of charter colonies
Majors	Captains	Deputy-governors
Captains	Lieutenants	Eſtabliſhed by the king, 1760

Doubling of the Ranks, is the placing two ranks in one, frequently uſed in the manœuvres of a regiment.

Ranks and Files, are the horizontal and vertical lines of ſoldiers when drawn up for ſervice.

RANSOM, a ſum of money paid for the redemption of a ſlave, or the liberty of a priſoner of war. In our law-books, ranſom is alſo uſed for a ſum paid for the pardon of ſome great offence, and to obtain the offender's liberty.

RANULA, a tumor under a child's tongue, which, like a ligature, hinders it from ſpeaking or ſucking.

RANUNCULUS, crowfoot: A genus of the polygamia order, belonging to the polyandria claſs of plants; and in the natural method ranking under the 26th order, *Multiſiliquæ*. The calyx is pentaphyllous; there are five petals, each with a melliferous pore on the inſide of the heel; the ſeeds naked.

Species. There are near 40 different ſpecies of this genus, ſix or eight of which claim general eſteem as flowery plants for ornamenting the gardens, and a great number are common weeds in the fields, waters, and paſture ground, not having merit for garden culture. Of the garden kinds, the principal ſort is the Aſiatic or Turkey and Perſian ranunculus, which compriſes many hundred varieties of large, double, moſt beautiful flowers of various colours: but ſeveral other ſpecies having varieties with fine double flowers, make a good appearance in a collection, though as thoſe of each ſpecies conſiſt only of one colour, ſome white, others yellow, they are inferior to the Aſiatic ranunculus, which is large, and diverſified a thouſand ways in rich colours, in different varieties. However, all the garden kinds in general effect a very agreeable diverſity in aſſemblage in the flower compartments, &c. and they being all very hardy, ſucceed in any open beds and borders, &c.

Culture. The Aſiatic ſpecies in all its varieties will ſucceed in any light, rich, garden earth; but the florifts often prepare a particular compoſt for the fine varieties, conſiſting of good garden-mould or paſture-earth, ſwitch and all, a fourth part of rotted cow-dung, and the like portion of ſea-ſand; and with this they prepare beds four feet wide and two deep: however, in default of ſuch compoſt, uſe beds of any good light earth of your garden; or, if neceſſary, it may be made light and rich with a portion of drift-ſand and rotten dung, cow-dung is moſt commonly recommended; but they will alſo thrive in beds of well-wrought kitchen-garden earth, and they often proſper well in the common flower-borders.

The ſeaſon for planting the roots is both in autumn and ſpring; the autumn plantings generally flower ſtrongeſt and ſooneſt by a month at leaſt, and are ſucceeded by the ſpring-planting in May and June. Perform the autumnal planting in October and early part of November, but ſome plant towards the latter end of September in order to have a very early bloom; but thoſe planted in that month and beginning of October often come up with rank leaves ſoon after, in winter, ſo as to require protection in hard froſts; thoſe, however, planted about the middle or latter end of October, and beginning of November, rarely ſhoot up ſtrong till towards ſpring, and will not require ſo much care of covering during winter; and the ſpring-planting may be performed the end of January or beginning of February, or as ſoon as the weather is ſettled; they will not require any trouble of covering, and will ſucceed the autumnal plants regularly in bloom, and will flower in good perfection. Thus by two or three different plantings you may obtain a ſucceſſion of theſe beautiful flowers in conſtant bloom from April till the middle of June; but the autumnal plants, for the general part, not only flower ſtrongeſt, but the roots increaſe more in ſize, and furniſh the beſt off-ſets for propagation: it is, however, proper to plant both in ſpring and autumn.

Prepare for the choicer ſorts four-feet beds of light earth, and rake the ſurface ſmooth: then plant the roots in rows lengthwiſe the beds, either by drilling them in two inches deep, and ſix inches diſtance in the row, and the rows ſix or eight aſunder; or you may plant them by bedding-in, or by dibble-planting, the ſame depth and diſtance.

Thoſe deſigned for the borders ſhould be planted generally

Ranunculus || Rape.

nerally towards the ſpring, in little clumps or patches, three, four, or five roots in each, putting them in either with a dibble or trowel, two or three inches deep, and three or four aſunder in each patch, and the patches from about three to five or ten feet diſtance, placing them rather forward in the border.

Propagation. All the varieties of the Aſiatic ranunculus propagate abundantly by off-ſets from the root, and new varieties are gained by ſeed.—1. By off-ſets. The time for ſeparating the off-ſets is in ſummer when the flower is paſt, and the leaves and ſtalks are withered: then taking up all the roots in dry weather, ſeparate the off-ſets from each main root, and after drying the whole gradually in ſome ſhady airy room, put them up in bags till the autumn and ſpring ſeaſons of planting; then plant them as before, placing all the off-ſets in ſeparate beds: many of them will blow the firſt year, but in the ſecond they will all flower in good perfection.—2. By ſeed. Save a quantity of ſeed from the fineſt ſemi-double flowers, and ſow it either in Auguſt, or in March, or April, though, to ſave trouble of winter-covering, ſome prefer the ſpring: it ſhould be ſowed in light rich mould, either in pots or in an eaſt border, drawing very ſhallow flat drills five or ſix inches aſunder, in which ſow the ſeeds thinly, and cover them lightly with earth, giving frequent refreſhments of water in dry weather, and in a month or ſix weeks the plants will riſe with ſmall leaves; obſerving to continue the light waterings in dry weather, to preſerve the ſoil moiſt during their ſummer's growth to increaſe the ſize of the roots; and in June when the leaves decay, take up the roots and preſerve them till the ſeaſon for planting, then plant them in common beds, as before directed, and they will flower the ſpring following, when all the doubles of good properties ſhould be marked, and the ſingles thrown away.

The juice of many ſpecies of ranunculus is ſo acrid as to raiſe bliſters on the ſkin, and yet the roots may be eaten with ſafety when boiled.

RAPACIOUS ANIMALS, are ſuch as live upon prey.

RAPE, in law, the carnal knowledge of a woman forcibly and againſt her will. This, by the Jewiſh law, was puniſhed with death, in caſe the damſel was betrothed to another man: and, in caſe ſhe was not betrothed, then a heavy fine of fifty ſhekels was to be paid to the damſel's father, and ſhe was to be the wife of the raviſher all the days of his life; without that power of divorce, which was in general permitted by the Moſaic law.

The civil law puniſhes the crime of raviſhment with death and confiſcation of goods: under which it includes both the offence of forcible abduction, or taking away a woman from her friends; and alſo the preſent offence of forcibly diſhonouring her; either of which, without the other, is in that law ſufficient to conſtitute a capital crime. Alſo the ſtealing away a woman from her parents or guardians, and debauching her, is equally penal by the emperor's edict, whether ſhe conſent or is forced. And this, in order to take away from women every opportunity of offending in this way; whom the Roman laws ſuppoſe never to go aſtray without the ſeduction and arts of the other ſex; and therefore, by reſtraining and making ſo highly penal the ſolicitations of the men, they meant to ſecure effectually the honour of the women. But our Engliſh law does not entertain quite ſuch ſublime ideas of the honour of either ſex, as to lay the blame of a mutual fault upon one of the tranſgreſſors only; and therefore makes it a neceſſary ingredient in the crime of rape, that it muſt be againſt the woman's will.

Rape was puniſhed by the Saxon laws, particularly thoſe of king Athelſtan, with death; which was alſo agreeable to the old Gothic or Scandinavian conſtitution. But this was afterwards thought too hard: and in its ſtead another ſevere, but not capital, puniſhment was inflicted by William the Conqueror, viz. caſtration and loſs of eyes; which continued till after Bracton wrote, in the reign of Henry III. But in order to prevent malicious accuſations, it was then the law, (and, it ſeems, ſtill continues to be ſo in appeals of rape), that the woman ſhould, immediately after, go to the next town, and there make diſcovery to ſome credible perſons of the injury ſhe has ſuffered; and afterwards ſhould acquaint the high conſtable of the hundred, the coroners, and the ſheriff, with the outrage. This ſeems to correſpond in ſome degree with the laws of Scotland and Arragon, which require that complaint muſt be made within 24 hours: though afterwards by ſtatute Weſtm. 1. c. 13. the time of limitation in England was extended to 40 days. At preſent there is no time of limitation fixed: for, as it is uſually now puniſhed by indictment at the ſuit of the king, the maxim of law takes place, that "nullum tempus occurrit regi:" but the jury will rarely give credit to a ſtale complaint. During the former period alſo it was held for law, that the woman (by conſent of the judge and her parents) might redeem the offender from the execution of his ſentence, by accepting him for her huſband; if he alſo was willing to agree to the exchange, but not otherwiſe.

In the 3 Edw. I. by the ſtatute Weſtm. 1. c. 13. the puniſhment of rape was much mitigated: the offence itſelf, of raviſhing a damſel within age, (that is, twelve years old) either with her conſent or without, or of any other woman againſt her will, being reduced to a treſpaſs, if not proſecuted by appeal within 40 days, and ſubjecting the offender only to two years impriſonment, and a fine at the king's will. But this lenity being productive of the moſt terrible conſequences, it was, in ten years afterwards, 13 Edw. I. found neceſſary to make the offence of forcible rape felony by ſtatute Weſtm. 2. c. 34. And by ſtatute 18 Eliz. c. 7. it is made felony without benefit of clergy: as is alſo the abominable wickedneſs of carnally knowing or abuſing any woman-child under the age of ten years; in which caſe the conſent or non-conſent is immaterial, as by reaſon of her tender years ſhe is incapable of judgment and diſcretion. Sir Matthew Hale is indeed of opinion, that ſuch profligate actions committed on an infant under the age of twelve years, the age of female diſcretion by the common law, either with or without conſent, amount to rape and felony; as well ſince as before the ſtatute of queen Elizabeth: but that law has in general been held only to extend to infants under ten; though it ſhould ſeem that damſels between ten and twelve are ſtill under the protection of the ſtatute Weſtm. 1. the law with reſpect to their ſeduction not having been altered by either of the ſubſequent ſtatutes.

A male infant, under the age of fourteen years, is

presumed by law incapable to commit a rape, and therefore it seems cannot be found guilty of it. For though in other felonies "malitia supplet ætatem;" yet, as to this particular species of felony, the law supposes an imbecility of body as well as mind.

The civil law seems to suppose a prostitute or common harlot incapable of any injuries of this kind: not allowing any punishment for violating the chastity of her, who hath indeed no chastity at all, or at least hath no regard to it. But the law of England does not judge so hardly of offenders, as to cut off all opportunity of retreat even from common strumpets, and to treat them as never capable of amendment. It therefore holds it to be felony to force even a concubine or harlot; because the woman may have forsaken that unlawful course of life: for, as Bracton well observes, "licet meretrix fuerit antea, certe tunc temporis non fuit, cum reclamando nequitiæ ejus consentire noluit."

As to the material facts requisite to be given in evidence and proved upon an indictment of rape, they are of such a nature, that, though necessary to be known and settled, for the conviction of the guilty and preservation of the innocent, and therefore are to be found in such criminal treatises as discourse of these matters in detail, yet they are highly improper to be publicly discussed, except only in a court of justice. We shall therefore merely add upon this head a few remarks from Sir Matthew Hale, with regard to the competency and credibility of witnesses; which may, *salvo pudore*, be considered.

And, first, the party ravished may give evidence upon oath, and is in law a competent witness; but the credibility of her testimony, and how far forth she is to be believed, must be left to the jury upon the circumstances of fact that concur in that testimony. For instance: if the witness be of good fame; if she presently discovered the offence, and made search for the offender; if the party accused fled for it; these and the like are concurring circumstances, which give greater probability to her evidence. But, on the other side, if she be of evil fame, and stand unsupported by others; if she concealed the injury for any considerable time after she had opportunity to complain; if the place, where the fact was alleged to be committed, was where it was possible she might have been heard, and she made no outcry: these and the like circumstances carry a strong, but not conclusive, presumption that her testimony is false or feigned.

Moreover, if the rape be charged to be committed on an infant under 12 years of age, she may still be a competent witness, if she hath sense and understanding to know the nature and obligations of an oath; and, even if she hath not, it is thought by Sir Matthew Hale, that she ought to be heard without oath, to give the court information; though that alone will not be sufficient to convict the offender. And he is of this opinion, first, Because the nature of the offence being secret, there may be no other possible proof of the actual fact; though afterwards there may be concurrent circumstances to corroborate it, proved by other witnesses: and, secondly, Because the law allows what the child told her mother, or other relations, to be given in evidence, since the nature of the case admits frequently of no better proof; and there is much more reason for the court to hear the narration of the child herself, than to receive it at second-hand from those who swear they heard her say so. And indeed it seems now to be settled, that in these cases infants of any age are to be heard; and, if they have any idea of an oath, to be also sworn: it being found by experience, that infants of very tender years often give the clearest and truest testimony. But in any of these cases, whether the child be sworn or not, it is to be wished, in order to render her evidence credible, that there should be some concurrent testimony of time, place, and circumstances, in order to make out the fact; and that the conviction should not be grounded singly on the unsupported accusation of an infant under years of discretion. There may be therefore, in many cases of this nature, witnesses who are competent, that is, who may be admitted to be heard; and yet, after being heard, may prove not to be credible, or such as the jury is bound to believe. For one excellence of the trial by jury is, that the jury are triers of the credit of the witnesses, as well as of the truth of the fact.

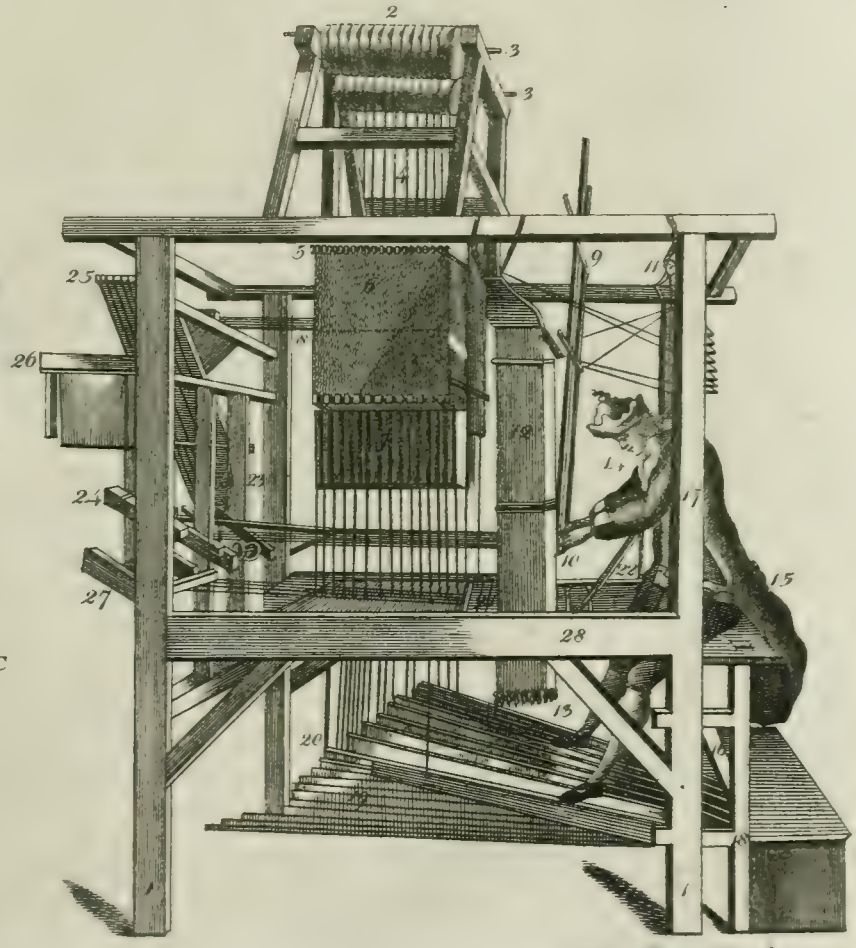
"It is true (says this learned judge), that rape is a most detestable crime, and therefore ought severely and impartially to be punished with death; but it must be remembered, that it is an accusation easy to be made, hard to be proved, but harder to be defended by the party accused, though innocent." He then relates two very extraordinary cases of malicious prosecution for this crime, that had happened within his own observation; and concludes thus: "I mention these instances, that we may be the more cautious upon trials of offences of this nature, wherein the court and jury may with so much ease be imposed upon, without great care and vigilance; the heinousness of the offence many times transporting the judge and jury with so much indignation, that they are over-hastily carried to the conviction of the persons accused thereof, by the confident testimony of sometimes false and malicious witnesses."

RAPHAEL (D'Urbino), the greatest, most sublime, and most excellent painter that has appeared, since the revival of the fine arts, was the son of an indifferent painter named *Sanzio*, and was born at Urbino on Good Friday 1482. The popes Julius II. and Leo X. who employed him, loaded him with wealth and honour; and it is said that cardinal De St Bibiana had such a value for him, that he offered him his niece in marriage. His genius is admired in all his pictures; his contours are free, his ordonnances magnificent, his designs correct, his figures elegant, his expressions lively, his attitudes natural, his heads graceful; in fine, every thing is beautiful, grand, sublime, just, and adorned with graces. These various perfections he derived not only from his excellent abilities, but from his study of antiquity and anatomy; and from the friendship he contracted with Ariosto, who contributed not a little to the improvement of his taste. His pictures are principally to be found in Italy and Paris. That of the Transfiguration, preserved at Rome in the church of St Peter Monterio, passes for his master-piece. He had a handsome person, was well proportioned, and had great sweetness of temper; was polite, affable, and modest.

Recurvirostra Americana.

Raphidia.

Ribbon Loom.



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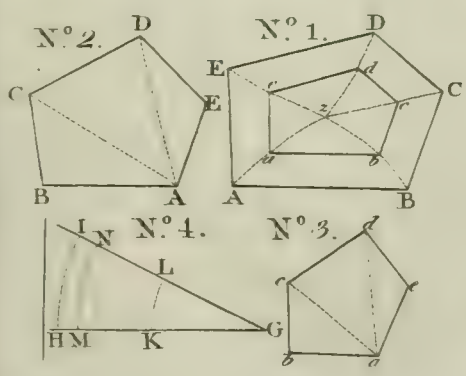

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deſt. He, however, lived in the utmoſt ſplendor; moſt of the eminent maſters of his time were ambitious of working under him; and he never went out without a crowd of artiſts and others, who followed him purely through reſpect. He was not only the beſt painter in the world, but perhaps the beſt architect too; on which account Leo X. charged him with building St Peter's church at Rome: but he was too much addicted to pleaſure, which occaſioned his death at 37 years of age. He left a great number of diſciples; among whom were Julio Romano and John Francis Penni, who were his heirs. Many able engravers, as Raimondi, George Mantuan, and Bloemart, engraved after Raphael. See PAINTING, p. 595 and 598.

RAPHAIM, or REPHAIM, (Moſes), a name ſignifying *Giants*, as they really were, and an actual people too, ſituated in Baſan or Batanea, beyond Jordan, ſeparated from the Zanzummim by the river Jabbok. Alſo a valley near Jeruſalem; Joſhua x.

RAPHANUS, RADISH; a genus of the ſiliquoſa order, belonging to the tetradynamia claſs of plants; and in the natural method ranking under the 39th order, *Siliquoſæ*. The calyx is cloſe; the ſiliqua toroſe, or ſwelling out in knots, ſubarticulated, and round. There are two melliferous glandules between the ſhorter ſtamina and the piſtil, and two between the longer ſtamina and the calyx.

There is only one ſpecies, viz. the ſativus, or common garden radiſh; of which there are ſeveral varieties. They are annual plants, which being ſowed in the ſpring, attain perfection in two or three months, and ſhoot up ſoon after into ſtalk for flower and ſeed, which, ripening in autumn, the whole plant, root and top, periſhes; ſo that a freſh ſupply muſt be raiſed annually from ſeed in the ſpring, performing the ſowings at ſeveral different times, from about Chriſtmas until May, in order to continue a regular ſucceſſion of young tender radiſhes throughout the ſeaſon: allowing only a fortnight or three weeks interval between the ſowings; for one crop will not continue good longer than that ſpace of time, before they will either run to ſeed, or become tough, ſticky, and too hot to eat.

RAPHANIDOSIS, a puniſhment inflicted at Athens upon adulterers. The manner of it was this: The hair was plucked off from the privities of the offender, hot aſhes laid upon the place, and a radiſh or mullet thruſt up his fundament, as has been mentioned under ADULTERY. To this Juvenal alludes, *Sat.* x. ver. 317. *Quoſdam mæchos et mugilis intrat.* Perſons who had been thus puniſhed were called ευκροικτοι. The word *raphanidoſis* is derived from ραφανις, a radiſh.

RAPHIDIA, in zoology; a genus of inſects, of the neuroptera order; the characters of which are theſe: The head is of a horny ſubſtance, and depreſſed or flattened: the mouth is armed with two teeth, and furniſhed with four palpi: the ſtemmata are three in number: the wings are deflected: the antennæ are filiform, as long as the thorax; the anterior part of which is lengthened out, and of a cylindrical form: the tail of the female is terminated by an appendix, reſembling a flexible crooked briſtle.—There are three ſpecies. The moſt remarkable is the ophiopſis; which for its ſhape is one of the moſt ſingular that can be ſeen †. It has an oblong head, ſhaped like a heart, with its point joined to the thorax, and the broad part before. It is ſmooth, black, flattened, continually ſhaking, with ſhort antennæ, yellowiſh maxillæ, and four palpi. Towards the middle of the upper part of the head, between the eyes, are the three ſtemmata, placed in a triangle. The thorax, to which this head is faſtened, is narrow, long, and cylindrical. The abdomen, broader, is black like the reſt of the body, with the ſegments margined yellow. The feet are of a yellowiſh caſt. The wings, which are faſtigiated, are white, diaphanous, veined, and as it were covered with a very fine net-work of black. This inſect, in the figure of its head, reſembles a ſnake. It is found but ſeldom, and in woods only. Its larva, chryſalis, and habitation, are abſolutely unknown.

Plate CCXXXV.

RAPIER, formerly ſignified a long old-faſhioned ſword, ſuch as thoſe worn by the common ſoldiers: but it now denotes a ſmall ſword, as contradiſtinguiſhed from a back-ſword.

RAPIN (Rene), a Jeſuit and eminent French writer, was born at Tours in 1621. He taught polite literature in the ſociety of the Jeſuits with great applauſe, and was juſtly eſteemed one of the beſt Latin poets and greateſt wits of his time. He died at Paris in 1687. He wrote, 1. A great number of Latin poems, which have rendered him famous throughout all Europe; among which are his *Hortorum libri quatuor*, which is reckoned his maſter-piece. 2. Reflections on Eloquence, Poetry, Hiſtory, and Philoſophy. 3. Compariſons between Virgil and Homer, Demoſthenes and Cicero, Plato and Ariſtotle, Thucydides and Titus Livius. 4. The Hiſtory of Janſeniſm. 5. Several works on religious ſubjects. The beſt edition of his Latin poems is that of Paris in 1723, in 3 vols 12mo.

RAPIN *de Thoyras* (Paul de), a celebrated hiſtorian, was the ſon of James de Rapin lord of Thoyras, and was born at Caſtres in 1661. He was educated at firſt under a tutor in his father's houſe; and afterwards ſent to Puylaurens, and thence to Saumur. In 1697 he returned to his father, with a deſign to apply himſelf to the ſtudy of the law, and was admitted an advocate: but ſome time after, reflecting that his being a Proteſtant would prevent his advancement at the bar, he reſolved to quit the profeſſion of the law, and apply himſelf to that of the ſword; but his father would not conſent to it. The revocation of the edict of Nantes in 1685, and the death of his father, which happened two months after, made him reſolve to come to England; but as he had no hopes of any ſettlement here, his ſtay was but ſhort. He therefore ſoon after went to Holland, and liſted himſelf in the company of French volunteers at Utrecht, commanded by M. Rapin his couſin-german. He attended the Prince of Orange into England in 1688: and the following year the Lord Kingſton made him an enſign in his regiment, with which he went into Ireland, where he gained the eſteem of his officers at the ſiege of Carrickfergus, and had ſoon a lieutenant's commiſſion. He was preſent at the battle of the Boyne, and was ſhot thro' the ſhoulder at the ſiege of Limerick. He was ſoon after captain of the company in which he had been enſign; but, in 1693, reſigned his company to one of his brothers, in order to be tutor to the earl of Portland's

son. In 1699, he married Marianne Testard; but this marriage neither abated his care of his pupil, nor prevented his accompanying him in his travels. Having finished this employment, he returned to his family, which he had settled at the Hague; and here he continued some years. But as he found his family increase, he resolved to retire to some cheap country; and accordingly removed, in 1707, to Wesel, where he wrote his History of England, and some other pieces. Though he was of a strong constitution, yet seventeen years application (for so long was he in composing the history just mentioned) entirely ruined his health. He died in 1725. He wrote in French, 1. A Dissertation on the Whigs and Tories. 2. His History of England, printed at the Hague in 1726 and 1727, in 9 vols 4to, and reprinted at Trevoux in 1728, in 10 vols 4to. This last edition is more complete than that of the Hague. It has been translated into English, and improved with Notes, by the Reverend Mr Tindal, in 2 vols folio. This performance, though the work of a foreigner, is deservedly esteemed as the fullest and most impartial collection of English political transactions extant. The readers of wit and vivacity, however, may be apt to complain of him for being sometimes rather tedious and dull.

RAPINE, in law, the taking away another's goods &c. by violence.

RAPPERSWIL, a town of Swisserland, on the confines of the canton of Zurich, and of the territory of Gaster, with an old castle. It is strong by situation, being seated on a neck of land which advances into the lake of Zurich, and over which there is a bridge 850 paces long. It is subject to the cantons of Zurich and Berne. E Long. 8. 57. N. Lat. 47. 20.

RAPPOLSTEIN, a town of France in Upper Alsace, which, before the Revolution, had the title of a barony. All the musicians of Alsace likewise depended upon this baron, and were obliged to pay him a certain tribute, without which they could not play upon their instruments. E. Long. 7. 28. N. Lat. 48. 15.

RAPTURE, an ecstasy or transport of mind. See Extasy.

RARE, in physic, stands opposed to dense; and denotes a body that is very porous, whose parts are at a great distance from one another, and which is supposed to contain but little matter under a large bulk. See the following article.

RAREFACTION, in physics, the act whereby a body is rendered rare; that is, brought to possess more room, or appear under a larger bulk, without accession of any new matter.—This is very frequently the effect of fire, as has long been universally allowed. In many cases, however, philosophers have attributed it to the action of a repulsive principle. However, from the many discoveries concerning the nature and properties of the electric fluid and fire, there is the greatest reason to believe, that this repulsive principle is no other than elementary fire. See Repulsion.

RAS-EL-FEEL, one of the frontier provinces of Abyssinia, of which the late celebrated traveller Mr Bruce was made governor while in that country. It is but of small extent, and in its most prosperous state contained only 39 villages. The climate is extremely hot, in Mr Bruce's opinion one of the hottest in the world. He informs us, that on the 3rd day of March, at three o'clock in the afternoon, the thermometer stood at 114° in the shade, and in the evening at 82°; though at sunrise it had been no higher than 61. Notwithstanding this appearance of extreme heat, however, the sensation was by no means intolerable; they could hunt at mid-day, and felt the evenings rather cold. The soil is a fat, loose, black earth, which our author says is the same from 13° to 16° of north latitude; at least till we come to the deserts of Atbara, where the tropical rains cease. This country divides that of the Shangalla into two parts, nearly equal. These people inhabit a belt of land about 60 miles broad, all along the northern frontier of Abyssinia, excepting two large gaps or spaces which have been left open for the sake of commerce, and which are inhabited by strangers, to keep the Shangalla in awe. The latter trade in gold, which they pick up in the streams as it is washed down from the mountains; for there are no mines in their country, neither is there any gold in Abyssinia, excepting what is imported from this or some other country. The Shangalla are the natural enemies of the inhabitants of Ras-el-Feel, and much blood has been shed in the various incursions they have made upon one another; though of late those of Ras-el-Feel, by the assistance of the emperors, have been enabled to keep the Shangalla at bay.

RAS-SEM, a city of Tripoli in Barbary, concerning which a number of fables were told by the Tripoline ambassador, all of which were believed in England and other parts of Europe in the beginning of this century. (See *Petrified-City*). Mr Bruce informs us, that it is situated about five days journey south from Bengazi; but has no water excepting one fountain, which has a disagreeable taste, and seems to be impregnated with alum. Hence it has obtained the name of *Ras-Sem*, or the fountain of poison. The only remains of antiquity in this place consist of the ruins of a tower or fortification, which, in the opinion of Mr Bruce, is as late as the time of the Vandals; but he says he cannot imagine what use they made of the water, and they had no other within two days journey of the place.—Here our traveller saw many of the animals called *jerboa*, a kind of mice; which, he says, seem to partake as much of the nature of a bird as of a quadruped.

RASAY, one of the Hebrides Islands, is about 13 miles long and 2 broad. It contains 700 inhabitants, has plenty of lime-stone, free-stone; and feeds great numbers of black cattle; but has neither deers, hares, nor rabbits. The only appearance of a harbour in Rasay is at Clachan Bay, where Mr Macleod the proprietor of the island resides. Rasay presents a bold shore, which rises to the height of mountains; and here the natives have, with incredible labour, formed many little corn fields and patato grounds. These heights decrease at the south end, where there are some farms and a good-looking country. Mr Macleod is sole proprietor of this island, and of Rona and Fladda at the north end of it, which are only proper for grazing.

The house of Rasay is pleasantly situated near the south-west end of the island, which is the most level part of it. It has an extensive and excellent garden, and is surrounded with forest trees of considerable magnitude; another proof that trees will grow upon the edge of the sea, though it must be allowed that the

Rascians || Rastenburg.

channel here is narrow. Immediately behind the house of Rasay are the ruins of an ancient chapel, now used as the family burying-place.

Dr Johnson, in his Tour, expresses the highest satisfaction at the reception he met with when in Rasay from Mr Macleod.

RASCIANS, a poor oppressed people who dwelt on both sides of the Danube, and who, about the year 1594, being weary of the Turkish thraldom, first took 13 of their vessels upon that river; and then drawing together a body of fifteen thousand men between Buda and Belgrade, twice defeated the pâshâ of Temeswar with a body of fourteen thousand Turks. They afterwards took Baczkerek, four miles from Belgrade, and the castle of Ottadt; then laying siege to that of Beche, on the Theyssa, the old pâshâ of Temeswar marched to relieve it with eleven thousand men; but the Rascians encountering them, slew near ten thousand, and took 18 pieces of canon. The consequence of this victory was the reduction of Wersetza and Lutz. Then, sending to the archduke for aid and gunners, they offered to put themselves and their country under the emperor's protection.

RASOR-BILL. See ALCA, n° 4.

RASOR-Fish. See SOLEN.

RASTALL (John), a printer and miscellaneous writer, was born in London, probably about the end of the 15th century, and educated at Oxford. Returning from the university, he settled in the metropolis, and commenced printer, "then esteemed (says Wood) a profession fit for any scholar or ingenious man." He married the sister of Sir Thomas More, with whom, we are told, he was very intimate, and whose writings he strenuously defended. From the title-page of one of his books, he appears to have lived in Cheapside, at the sign of the mermaid. He died in the year 1536; and left two sons, William and John: the first of whom became a judge in queen Mary's reign, and the latter a justice of peace. This John Rastall, the subject of the present article, was a zealous Papist; but Bale says, that he changed his religion before his death. He wrote, 1. *Natura naturata.* Pits calls it a copious *(prolixa)* and ingenious comedy, describing Europe, Asia, and Africa; with cuts. What sort of a comedy this was, is not easy to conceive. Probably it is a cosmographical description, written in dialogue, and therefore styled a *comedy.* 2. The pastyme of the people; the cronycles of diverse realmys, and most especially of the realm of England, brevely compiled and emprinted in Cheapesyde, at the sign of the mearmaid, next Pollysgate, *cum privilegio*, fol. 3. *Ecclesia Johannis Rastall*, 1542. Was one of the prohibited books in the reign of Henry VIII. 4. *Legum Anglicanarum vocabula explicata.* French and Latin. Lond. 1567, 8vo. And some other works.

RASTADT, a town of Germany, in the circle of Suabia and marquisate of Baden, with a handsome castle. It is remarkable for a treaty concluded here between the French and Imperialists in 1714; and is seated on the river Merg, near the Rhine. E. Long. 9. 14. N. Lat. 48. 52.

RASTENBURG, a fine city in Prussia, on the Guber, surrounded with a wall, and since 1629 also with a rampart.

Rat.

RAT, in zoology. See MUS.

The following receipt is said to have been found effectual for the destruction of rats. Take of the seeds of stavesacre or lousewort, powdered, more or less as the occasion requires, one part; of oat-meal, three parts; mix them well, and make them up into a paste with honey. Lay pieces of it in the holes, and on the places where mice and rats frequent; and it will effectually kill or rid the place of those kind of vermin by their eating thereof.

Some time ago, the society for encouraging arts proposed a premium of 50l. for a preparation capable of alluring or fascinating rats so that they might be taken alive. In consequence of this, a great number of new traps, &c. were invented; and the following methods of alluring the rats to a certain place were published.

One of those most easily and efficaciously practised is the trailing some pieces of their most favourite food, which should be of the kind that has the strongest scent, such as toasted cheese or broiled red herrings, from the holes or entrances of the closet to their recesses in every part of the house or contiguous building. At the extremities and in different parts of the course of this trailed track, small quantities of meal, or any other kind of their food, should be laid, to bring the greater number into the tracks, and to encourage them to pursue it to the place where they are intended to be taken: at that place, when time admits of it, a more plentiful repast is laid for them, and the trailing repeated for two or three nights.

Besides this trailing and way-baiting, some of the most expert of the rat-catchers have a shorter and perhaps more effectual method of bringing them together; which is the calling them, by making such a whistling noise as resembles their own call; and by this means, with the assistance of the way-baits, they call them out of their holes, and lead them to the repast prepared for them at the place designed for taking them. But this is much more difficult to be practised than the art of trailing; for the learning the exact notes or cries of any kind of beasts or birds, so as to deceive them, is a peculiar talent which is seldom attained: though some persons have been known who could call together a great number of cats; and there was a man in London who could bring nightingales, when they were within hearing, about him, and even allure them to perch on his hand, so as to be taken.

In practising either of those methods, of trailing or calling, great caution must be used by the operator to suppress and prevent the scent of his feet and body from being perceived; which is done by overpowering that scent by others of a stronger nature. In order to this, the feet are to be covered with cloths rubbed over with asafœtida, or other strong-smelling substances; and even oil of rhodium is sometimes used for this purpose, but sparingly, on account of its dearness, though it has a very alluring as well as disguising effect. If this caution of avoiding the scent of the operator's feet, near the track, and in the place where the rats are proposed to be collected, be not properly observed, it will very much obstruct the success of the attempt to take them; for they are very shy of coming where the scent of human feet lies very fresh, as it intimates to their sagacious instinct the presence of human creatures, whom they

naturally dread. To the above-mentioned means of alluring by trailing, way-baiting, and calling, is added another of a very material efficacy, which is, the use of oil of rhodium, which, like the marum Syriacum in the case of cats, has a very extraordinary fascinating power on these animals. This oil is extremely dear, and therefore sparingly used. It is exalted in a small quantity in the place, and at the entrance of it, where the rats are intended to be taken; particularly at the time when they are to be last brought together, in order to their destruction; and it is used also by smearing it on the surface of some of the implements used in taking by the method below described; and the effect it has in taking off their caution and dread, by the delight they appear to have in it, is very extraordinary.

It is usual, likewise, for the operator to disguise his figure as well as scent, which is done by putting on a sort of gown or cloak, of one colour, that hides the natural form, and makes him appear like a post or some such inanimate thing; which habit must likewise be scented as above, to overpower the smell of his person; and besides this, he is to avoid all motion till he has secured his point of having all the rats in his power.

When the rats are thus enticed and collected, where time is afforded, and the whole in any house and outbuildings are intended to be cleared away, they are suffered to regale on what they most like, which is ready prepared for them, and then to go away quietly for two or three nights; by which means those that are not allured the first night are brought afterwards, either by their fellows, or the effects of the trailing, &c. and will not fail to come duly again, if they are not disturbed or molested. But many of the rat-catchers make shorter work, and content themselves with what can be brought together in one night or two; but this is never effectual, unless where the building is small and entire, and the rats but few in number.

The means of taking them, when they are brought together, are various. Some entice them into a very large bag, the mouth of which is sufficiently capacious to cover nearly the whole floor of the place where they are collected; which is done by smearing some vessel, placed in the middle of the bag, with oil of rhodium, and laying in the bag baits of food. This bag, which before lay flat on the ground with the mouth spread open, is to be suddenly closed when the rats are all in. Others drive or fright them, by slight noises or motions, into a bag of a long form, the mouth of which, after all the rats are come in, is drawn up to the opening of the place by which they entered, all other ways of retreat being secured. Others, again, intoxicate or poison them, by mixing with the repast prepared for them the coculus Indicus, or the nux vomica. They direct four ounces of the coculus Indicus, with twelve ounces of oatmeal, and two ounces of treacle or honey, made into a moist paste with strong-beer: but if the nux vomica be used, a much less proportion will serve than is here given of the coculus. Any similar composition of these drugs, with that kind of food the rats are most fond of, and which has a strong flavour, to hide that of the drugs, will equally well answer the end. If indeed the coculus Indicus be well powdered, and infused in strong-beer for some time, at least half the quantity here directed will serve as well as the quantity before-mentioned. When the rats appear to be thoroughly intoxicated with the coculus, or sick with the nux vomica, they may be taken with the hand, and put into a bag or cage, the door of the place being first drawn to, lest those who have strength and sense remaining escape.

Rat-Island, a small detached part of the island of Lundy, off the north coast of Devon. Though noted in Donn's map of the county, it is not worth mention here, but as giving opportunity to subjoin a farther notice of Lundy, which island was purchased a few years since by Mr Cleveland M. P. for about 1200 guineas, who has a small villa on it: not more than 400 acres are cultivated: it is let altogether for 70l. a-year. The soil is good, though no trees will grow on the island. It has fine springs of water: the houses are seven: the inhabitants, men, women, and children, do not exceed 24. The bird called *murr*, whose eggs are very large and fine, the Lundy parrot, and rabbits, are the chief produce; these abound, and are taken for the feathers, eggs, and skins, principally. They have now (1794) 70 bullocks and 400 sheep, but the latter do not thrive. They pay no taxes: fishing skiffs often call with necessaries: the situation is very pleasant, and the rocks around, which are large, and partly granite, are wild, romantic, and novel. It had probably more inhabitants once, as human bones have been ploughed up. It has no place of worship, nor public-house; but strangers are always welcome. Eight cannon lie on the battlements on the top of a very steep precipice, under which is a curious cavern. Lord Gower, Mr Benson, and Sir J. B. Warren, K. B. have been former proprietors. See LUNDY.

Rat-Tails, or *Arrests*. See FARRIERY, § xxxvii.

RATAFIA, a fine spirituous liquor, prepared from the kernels, &c. of several kinds of fruits, particularly of cherries and apricots.

Ratafia of cherries is prepared by bruising the cherries, and putting them into a vessel wherein brandy has been long kept; then adding to them the kernels of cherries, with strawberries, sugar, cinnamon, white pepper, nutmeg, cloves; and to 20 pound of cherries 10 quarts of brandy. The vessel is left open ten or twelve days, and then stopped close for two months before it be tapped. Ratafia of apricots is prepared two ways, viz. either by boiling the apricots in white-wine, adding to the liquor an equal quantity of brandy, with sugar, cinnamon, mace, and the kernels of apricots; infusing the whole for eight or ten days; then straining the liquor, and putting it up for use: or else by infusing the apricots, cut in pieces, in brandy, for a day or two, passing it through a straining bag, and then putting in the usual ingredients.

RATCH, or RASH, in clock-work, a sort of wheel having twelve fangs, which serve to lift up the detents every hour, and make the clock strike. See CLOCK.

RATCHETS, in a watch, are the small teeth at the bottom of the fusy, or barrel, which stops it in winding up.

RATE, a standard or proportion, by which either the quantity or value of a thing is adjusted.

RATES, in the navy, the orders or classes into which the ships of war are divided, according to their force and magnitude.

The regulation, which limits the rates of men of war to the smallest number possible, seems to have been dictated by considerations of political economy, or of that of

Rates. of the ſimplicity of the ſervice in the royal dock-yards. The Britiſh fleet is accordingly diſtributed into ſix rates, excluſive of the inferior veſſels that uſually attend on naval armaments; as ſloops of war, armed ſhips, bomb-ketches, fire-ſhips and cutters, or ſchooners commanded by lieutenants.

Ships of the firſt rate mount 100 cannon, having 42-pounders on the lower deck, 24-pounders on the middle deck, 12-pounders on the upper deck, and 6-pounders on the quarter-deck and fore-caſtle. They are manned with 850 men, including their officers, ſeamen, marines, and ſervants.

In general, the ſhips of every rate, beſides the captain, have the maſter, the boatſwain, the gunner, the chaplain, the purſer, the ſurgeon, and the carpenter; all of whom, except the chaplain, have their mates or aſſiſtants, in which are comprehended the ſail-maker, the maſter at arms, the armourer, the captain's clerk, the gunſmith, &c.

The number of other officers are always in proportion to the rate of the ſhip. Thus a firſt rate has ſix lieutenants, ſix maſter's mates, twenty-four midſhipmen, and five ſurgeon's mates, who are conſidered as gentlemen: beſides the following petty officers; quarter-maſters and their mates, fourteen; boatſwain's mates and yeomen, eight; gunner's mates and aſſiſtants, ſix; quarter-gunners, twenty-five; carpenter's mates, two, beſides fourteen aſſiſtants; with one ſteward, and ſteward's mate to the purſer.

If the dimenſions of all ſhips of the ſame rate were equal, it would be the ſimpleſt and moſt perſpicuous method to collect them into one point of view in a table: but as there is no invariable rule for the general dimenſions. We muſt content ourſelves with but a few remarks on ſhips of each rate, ſo as to give a general idea of the difference between them.

The Victory, one of the laſt built of our firſt rates, is 222 feet 6 inches in length, from the head to the ſtern; the length of her keel, 151 feet 3 inches; that of her gun-deck, or lower deck, 186 feet; her extreme breadth is 51 feet 10 inches; her depth in the hold, 21 feet 6 inches; her burden, 2162 tons; and her poop reaches 6 feet before the mizen-maſt.

Ships of the ſecond rate carry 90 guns upon three decks, of which thoſe on the lower battery are 32-pounders; thoſe on the middle, 18-pounders; on the upper deck, 12-pounders; and thoſe on the quarter-deck, 6-pounders, which uſually amount to four or ſix. Their complement of men is 750, in which there are ſix lieutenants, four maſter's mates, 24 midſhipmen, and four ſurgeon's mates, 14 quarter-maſters and their mates, eight boatſwain's mates and yeomen, ſix gunner's mates and yeomen, with 22 quarter-gunners, two carpenter's mates, with 10 aſſiſtants, and one ſteward and ſteward's mate.

Ships of the third rate carry from 64 to 80 cannon, which are 31, 18, and 9 pounders. The 80-gun ſhips however begin to grow out of repute, and to give way to thoſe of 74, 70, &c. which have only two whole batteries; whereas the former have three, with 28 guns planted on each, the cannon of their upper deck being the ſame as thoſe on the quarter-deck and fore-caſtle of the latter, which are 9-pounders. The complement in a 74 is 650, and in a 64, 500 men; having, in peace, four lieutenants, but in war, five; and when an admiral is aboard, ſix. They have three maſter's mates, 16 midſhipmen, three ſurgeon's mates, 10 quarter-maſters and their mates, ſix boatſwain's mates and yeomen, four gunner's mates and yeomen, with 18 quarter-gunners, one carpenter's mate, with eight aſſiſtants, and one ſteward and ſteward's mate under the purſer. Rates.

Ships of the fourth rate mount from 60 to 50 guns, upon two decks, and the quarter-deck. The lower tier is compoſed of 24-pounders, the upper tier of 12-pounders, and the cannon on the quarter-deck and fore-caſtle are 6-pounders. The complement of a 50 gun ſhip is 350 men, in which there are three lieutenants, two maſter's mates, 10 midſhipmen, two ſurgeon's mates, eight quarter-maſters and their mates, four boatſwain's mates and yeomen, one gunner's mate and one yeoman, with 12 quarter-gunners, one carpenter's mate and ſix aſſiſtants, and a ſteward and ſteward's mate.

All veſſels of war, under the fourth rate, are uſually comprehended under the general name of *frigates*, and never appear in the line of battle. They are divided into the 5th and 6th rates; the former mounting from 40 to 32 guns, and the latter from 28 to 20. The largeſt of the fifth rate have two decks of cannon, the lower battery being of 18-pounders, and that of the upper deck of 9-pounders; but thoſe of 36 and 32 guns have one complete deck of guns, mounting 12-pounders, beſides the quarter-deck and fore-caſtle, which carry 6-pounders. The complement of a ſhip of 44 guns is 280 men; and that of a frigate of 36 guns, 240 men. The firſt has three, and the ſecond two, lieutenants; and both have two maſter's mates, ſix midſhipmen, two ſurgeon's mates, ſix quarter-maſters and their mates, two boatſwain's mates and one yeoman, one gunner's mate and one yeoman, with 10 or 11 quarter-gunners, and one purſer's ſteward.

Frigates of the 6th rate carry 9-pounders, thoſe of 28 guns having 3-pounders on their quarter-deck, with 200 men for their complement; and thoſe of 24, 160 men: the former has two lieutenants, the latter, one; and both have two maſter's mates, four midſhipmen, one ſurgeon's mate, four quarter-maſters and their mates, one boatſwain's mate and one yeoman, one gunner's mate and one yeoman, with ſix or ſeven quarter-gunners, and one purſer's ſteward.

The ſloops of war carry from 18 to 8 cannon, the largeſt of which have ſix-pounders; and the ſmalleſt, viz. thoſe of 8 or 10 guns, four-pounders. Their officers are generally the ſame as in the 6th rates, with little variation; and their complements of men are from 120 to 60, in proportion to their force or magnitude. *N. B.* Bomb-veſſels are on the ſame eſtabliſhment as ſloops; but fire-ſhips and hoſpital-ſhips are on that of fifth rates.

Nothing more evidently manifeſts the great improvement of the marine art, and the degree of perfection to which it has arrived in Britain, than the facility of managing our firſt rates; which were formerly eſteemed incapable of government, unleſs in the moſt favourable weather of the ſummer.

Ships of the ſecond rate, and thoſe of the third, which have three decks, carry their ſails remarkably well, and labour very little at ſea. They are excellent in a general action, or in cannonading a fortreſs. Thoſe of the third rate, which have two tiers, are fit for the line.

line of battle, to lead the convoys and ſquadrons of ſhips of war in action, and in general to ſuit the different exigencies of the naval ſervice.

The fourth-rates may be employed on the ſame occaſions as the third-rates, and may be alſo deſtined amongſt the foreign colonies, or on expeditions of great diſtance; ſince theſe veſſels are uſually excellent for keeping and ſuſtaining the ſea.

Veſſels of the fifth rate are too weak to ſuffer the ſhock of a line of battle; but they may be deſtined to lead the convoys of merchant ſhips, to protect the commerce in the colonies, to cruize in different ſtations, to accompany ſquadrons, or be ſent expreſs with neceſſary intelligence and orders. The ſame may be obſerved of the ſixth rates.

The frigates, which mount from 28 to 38 guns upon one deck, with the quarter-deck, are extremely proper for cruizing againſt privateers, or for ſhort expeditions, being light, long, and uſually excellent ſailors.

RATEEN, or RATTEN, in commerce, a thick woollen ſtuff, quilled, woven on a loom with four treddles, like ſerges and other ſtuffs that have the whale or quilling. There are ſome rateens dreſſed and prepared like cloths; others left ſimply in the hair, and others where the hair or knap is friſed. Rateens are chiefly manufactured in France, Holland, and Italy, and are moſtly uſed in linings. The frize is a ſort of coarſe rateen, and the drugget is a rateen half linen half woollen.

RATIFICATION, an act approving of and confirming ſomething done by another in our name.

RATIO, in arithmetic and geometry, is that relation of homogeneous things which determines the quantity of one from the quantity of another, without the intervention of a third.

Two numbers, lines, or quantities, A and B, being propoſed, their relation one to another may be conſidered under one of theſe two heads: 1. How much A exceeds B, or B exceeds A? And this is found by taking A from B, or B from A, and is called *arithmetic reaſon*, or *ratio*. 2. Or how many times, and parts of a time, A contains B, or B contains A? And this is called *geometric reaſon* or *ratio*; (or, as Euclid defines it, it is the *mutual habitude*, or *reſpect*, of two magnitudes of the ſame kind, according to quantity; that is, as to how often the one contains, or is contained in, the other); and is found by dividing A by B, or B by A. And here note, that that quantity which is referred to another quantity is called the *antecedent of the ratio*: and that to which the other is referred is called the *conſequent of the ratio*; as, in the ratio of A to B, A is the antecedent, and B the conſequent. Therefore any quantity, as antecedent, divided by any quantity as a conſequent, gives the ratio of that antecedent to the conſequent.

Thus the ratio of A to B is $\frac{A}{B}$, but the ratio of B to A is $\frac{B}{A}$; and, in numbers, the ratio of 12 to 4 is $\frac{12}{4}=3$, or triple; but the ratio of 4 to 12 is $\frac{4}{12}=\frac{1}{3}$, or ſubtriple.

And here note, that the quantities thus compared muſt be of the ſame kind; that is, ſuch as by multiplication may be made to exceed one the other, or as theſe quantities are ſaid to have a ratio between them, which, being multiplied, may be made to exceed one another. Thus a line, how ſhort ſoever, may be multiplied, that is, produced ſo long as to exceed any given right line; and conſequently theſe may be compared together, and the ratio expreſſed: but as a line can never, by any multiplication whatever, be made to have breadth, that is, to be made equal to a ſuperficies, how ſmall ſoever; theſe can therefore never be compared together, and conſequently have no ratio or reſpect one to another, according to quantity; that is, as to how often the one contains, or is contained in, the other. See QUANTITY.

RATIOCINATION, the act of reaſoning. See REASONING.

RATION, or RATIAN, in the army, a portion of ammunition, bread, drink, and forage, diſtributed to each ſoldier in the army, for his daily ſubſiſtence, &c. The horſe have rations of hay and oats when they cannot go out to forage. The rations of bread are regulated by weight. The ordinary ration of a foot ſoldier is a pound and a half of bread per day. The officers have ſeveral rations according to their quality and the number of attendants they are obliged to keep.—When the ration is augmented on occaſions of rejoicing, it is called a *double ration*. The ſhip's crews have alſo their rations or allowances of biſket, pulſe, and water, proportioned according to their ſtock.

RATIONALE, a ſolution or account of the principles of ſome opinion, action, hypotheſis, phenomenon, or the like.

RATIBOR, a town of Germany, in Sileſia, and capital of a duchy of the ſame name, with a caſtle. It has been twice taken by the Swedes, and is ſeated on the river Oder, in a country fertile in corn and fruits, 15 miles north-eaſt of Troppaw, and 142 eaſt of Prague. E. Long. 22. 24. N. Lat. 50. 14.

RATISBON, an ancient, large, rich, handſome, and ſtrong city of Germany, in Bavaria, free and imperial, with a biſhop's ſee, whoſe biſhop is a prince of the empire. It is called by the Germans Regenſburg, from the river Regens, which runs under a fine ſtone bridge, and throws itſelf into the Danube below the city; and the rivers Luber and Nab mix with it above the city. The French call it Ratiſbon, in imitation of the Latins; it hath formerly been ſubject to the kings of Bavaria, who made it the place of their reſidence; but it was declared free by the emperor Frederick I. which does not however hinder the dukes of Bavaria from dividing the toll with the citizens, according to an agreement between them. Theſe princes have alſo the criminal juriſdiction, for which the magiſtrates of the city pay them homage. It is the firſt city of the bench of Suabia, and contains at preſent within its walls five different free ſtates of the empire; namely, the biſhop, the abbot of St Emmeran, the abbeſſes of the Low and High Munſter, and the city. The inhabitants of Ratiſbon have the privilege not to be cited before other tribunals, unleſs for actions above 400 florins. The ſenate is compoſed of 17 members, and there is a council of 10, which is charged with the government of the ſtate. The citizens have a right to elect a chief, who judges of the affairs of police. The catholics have the exerciſe of their religion in the cathedral church, and others, and the

the Lutherans in three churches, which they have built. The magistrates and officers of the city are all Protestants; and it is to be remarked, that although there are about 22 Catholic churches, yet there are very few Catholic citizens, the magistracy not allowing the freedom of the town to be given to Catholics living there. As this city is large, elegant, and full of magnificent houses, it has been chosen many years for the place of holding the diet, upon account of the conveniency, to many neighbouring princes and states, of sending their provisions by land and water, without great expence. The town-house, in the hall of which the Diet meets, is extremely magnificent. In the year 1740, however, when there was a war in Germany, the Diet met at Frankfort on the Main, till after the death of the emperor Charles VII. Provisions are very plentiful at Ratisbon in time of peace. The inhabitants have a good deal of trade, the river on which it stands being navigable, and communicating with a great part of Germany. It is 55 miles south-east of Nuremberg, 62 north of Munich, and 195 west of Vienna. E. Long. 12. 5. N. Lat. 48. 59.

RATLINES, or, as the sailors call them *ratlins*, those lines which make the ladder steps to go up the shrouds and puttocks, hence called the *ratlins of the shrouds*.

RATOLFZEL, a strong town of Germany, in Suabia, near the west end of the lake Constance. It is seated on that part of it called *Bodensee*, and belongs to the house of Austria, who took it from the duke of Wirtemburg, after the battle of Nordlingen. It is 12 miles west of the city of Constance. It is defended by the impregnable castle of Hohen Dwel, on an inaccessible hill in the middle of a plain, the rock of which is flint, so that a few men may hold it out against an army.

RATTLESNAKE. See CROTALUS.

Rattlesnake Root. See POLYGALA.

RATZEBURG, or RATZEMBURG, an ancient town of Germany, in the circle of Lower Saxony, and in the duchy of Lawenburgh, with a bishop's see and a castle. The town depends on the duchy of Lawenburg, and the cathedral church on that of Ratzburg. It is seated on an eminence, and almost surrounded with a lake 25 miles in length and three in breadth. The Duke of Lawenburg seized and fortified it in 1689, and the king of Denmark took it in 1693; but it was dismantled, and restored in 1700 to the Duke, who re-fortified it. This town has been frequently pillaged, particularly in 1552. by Francis duke of Saxe Lawenburg, because the canons refused to elect his son Magnus their bishop. It lies nine miles south of Lubec. This place is noted for its excellent beer. E. Long. 10. 58. N. Lat. 53. 47.

RAVA, a town of Great Poland, and capital of a palatinate of the same name, with a fortified castle, where they keep state prisoners. The houses are built of wood, and there is a Jesuits college. It is seated in a morass covered with water, which proceeds from the river Rava, with which it is surrounded. It is 45 miles south of Blosko, and 50 south-west of Warsaw. The palatinate is bounded on the north by that of Blosko, on the east by that of Mazovia, on the south by that of Sandomer, and on the west by that of Lencieza.

RAVELIN, in fortification, was anciently a flat bastion placed in the middle of a curtain; but now a detached work composed only of two faces, which make a saliant angle without any flanks, and raised before the counterscarp of the place. See FORTIFICATION.

RAVEN, in ornithology. See CORVUS.

Sea RAVEN, or *corvo marino* of Kongo in Africa, in ichthyology, is about six feet long, and big in proportion; but the most singular circumstance appertaining to this creature is the stone found in its head, to which the natives ascribe some medicinal virtues, and the delicate taste of its hard roe, which is still much admired, when dried in the sun, and becomes as hard as a stone.

RAVENGLAS, a town of Cumberland in England, situated between the rivers Irt and Esk, which, with the sea, encompass three parts of it. It is a well built place, and has a good road for shipping, which brings it some trade. E. Long. 0. 5. N. Lat. 54. 20.

RAVENNA (anc. geog.), a noble city of Gallia Cispadana; a colony of Thessalians, on the Adriatic, in washes or a boggy situation, which proved a natural security to it. The houses were all of wood, the communication by bridges and boats, and the town kept sweet and clean by the tides carrying away the mud and soil, (Strabo). Anciently it had a port at the mouth of the Bedesis; Augustus added a new port, capacious to hold a fleet, for the security of the Adriatic, between which and the city lay the Via Cæsaris. In the lower age it was the seat of the Ostrogoths for 72 years; but being recovered by Narses, Justinian's general, it became the residence of the exarchs, magistrates sent by the emperor from Constantinople, for 175 years, when it was taken by the Longobards. It is still called *Ravenna*, capital of Romania. The seat of the western or Roman Empire was by Honorius translated to Ravenna about the year 404, and hence the country in which it stood was called *Romania*, in the pope's territory. It had a very flourishing trade till the sea withdrew two miles from it, which has been a great detriment. The fortifications are of little importance, and the citadel is gone to ruin. It is now most remarkable for the excellent wine produced in its neighbourhood. The mausoleum of Theodoric is still to be seen, remarkable for being covered by a single stone 28 feet in diameter and 15 thick. It was at Ravenna that the duke of Nemours fell, after having gained a most decisive victory over the confederate army, in 1511. See FRANCE, n. 129, and Modern Universal History, vol. xx. p. 374. &c.

RAVENSBURG, a county of Germany, in Westphalia, bounded on the north by the bishoprics of Osnaburg and Minden, on the east by Lemgow, on the south by the bishopric of Paderborn, and on the west by that of Munster. It belongs to the king of Prussia, and has its name from the castle of Ravensburg.

RAVENSBURG, a free and imperial town of Germany, in Algow, in the circle of Suabia. It is well built, and the public structures are handsome. The inhabitants are partly Protestants and partly Papists. It is seated on the river Chenss, in E. Long. 9. 46. N. Lat. 47. 44.

RAVET, an insect shaped like a [illegible] chaffel, (see SCARABÆUS), with which the [illegible] Guadaloupe is much pestered. It has a stinking smell, preys upon paper, books, and furniture, and [illegible]

they do not grow is discoloured by their ordure. These insects, which are very numerous, and appear chiefly by night, would be intolerable, were it not for a large spider, some of them as long as a man's fist, which intangles them in its web, and otherwise surprises them. On which account the inhabitants of the island are very careful of these spiders.

Spiders.

RAVILLIAC (Francis), the infamous assassin of Henry IV. of France, was a native of Angoulesme, and at the time of his execution was about one or two and thirty years of age. See FRANCE, n° 146, and HENRY IV. of France. Ravilliac was the son of parents who lived upon alms. His father was that sort of inferior retainer to the law, to which the vulgar give the name of a *pettifogger*, and his son had been bred up in the same way. Ravilliac had set up a claim to an estate, but the cause went against him: this disappointment affected his mind deeply: he afterwards taught a school, and, as himself said, received charitable gifts, though but of a very small value, from the parents of those whom he taught; and yet his distress was so great, that he had much ado to live. When he was seized for the king's murder, he was very loosely guarded; all were permitted to speak with him who pleased; and it was thought very remarkable that a Jesuit should say to him, "Friend, take care, whatever you do, that you don't charge honest people." He was removed next day from the house of Espernon to the Conciergerie, the proper prison of the parliament of Paris. When he was first interrogated, he answered with great boldness, "That he had done it, and would do it, if it were to do again." When he was told that the king, though dangerously wounded, was living, and might recover, he said that he had struck him home, and that he was sure he was dead. In his subsequent examinations he owned that he had long had an intention to kill the king, because he suffered two religions in his kingdom; and that he endeavoured to obtain an audience of him, that he might admonish him. He also said that he understood the king's great armament to be against the pope, and that, in his opinion, to make war against the pope, was to make war against God. We have no distinct account of the three last examinations; but he is said to have persisted, in the most solemn asseverations, that he had no accomplices, and that nobody had persuaded him to the fact. He appeared surprised at nothing so much as at the universal abhorrence of the people, which, it seems, he did not expect. They were forced to guard him strictly from his fellow-prisoners, who would otherwise have murdered him. The butchers of Paris desired to have him put into their hands, affirming that they would flay him alive, and that he should still live 12 days. When he was put to the torture, he broke out into horrid execrations, and always insisted that he did the fact from his own motive, and that he could accuse nobody. On the day of his execution, after he had made the *amende honorable* before the church of Notre Dame, he was carried to the Greve; and, being brought upon a scaffold, was tied to a wooden engine in the shape of a St Andrew's cross. The knife with which he did the murder being fastened in his right hand, it was first burnt in a slow fire; then the fleshy parts of his body were torn with red-hot pincers, and melted lead, oil, pitch, and resin, poured into the wounds, and through a clay funnel into his bowels by the navel. The people refused to pray for him; and when, according to the sentence pronounced upon him, he came to be dragged to pieces by four horses, one of those that were brought appearing to be but weak, one of the spectators offered his own, with which the criminal was much moved: he is said to have then made a confession, which was so written by the greffier Voisin, that not so much as one word of it could ever be read. He was very earnest for absolution, which his confessor refused, unless he would reveal his accomplices; "Give it me conditionally (said he); upon condition that I have told the truth," which they did. His body was so robust, that it resisted the force of the horses; and the executioner was at length obliged to cut him into quarters, which the people dragged through the streets. The house in which he was born was demolished, and a column of infamy erected; his father and mother were banished from Angoulesme, and ordered to quit the kingdom upon pain of being hanged, if they returned, without any form of process; his brothers, sisters, uncles, and other relations, were commanded to lay aside the name of Ravilliac, and to assume some other. Such was the fate of this execrable monster, who, according to his own account, suffered himself to be impelled to such a fact by the seditious sermons and books of the Jesuits, whom Henry, rather out of fear than love, had recalled and caressed, and to whom he had bequeathed his heart.

Ravilliac.

Neither the dying words of Ravilliac, nor so much of his process as was published, were credited by his cotemporaries. Regalt the historian says, that there were two different opinions concerning this assassination; one, that it was conducted by some grandees, who sacrificed that monarch to their old resentments; the other, that it was done by the emissaries of the Spaniards. Letters from Brussels, Antwerp, Mechlin, and other places, were received before the 15th of May, with a report of the king's death. Though nothing occurs in the examinations of Ravilliac that were first published, in reference to his journeys to Naples and other places; yet as these are set down as certain truths by good authors, so there are probable grounds to believe that they were not fictitious. It appears from Sir Ralph Winwood's Memorials, that Ravilliac had been not long before at Brussels. Amongst other circumstances that created a very great doubt, whether the assassin spoke truth, were the things found in his pocket at the time he was seized; amongst which was a chaplet, the figure of a heart made in cotton, in the centre of which he said there was a bit of the true cross, but when cut there was none, which he affirmed was given him by a canon at Angoulesme, a piece of paper with the arms of France painted upon it, another full of characters, and a third containing verses for the meditation of a criminal going to execution. The provost of Pluviers, or Petiviers, in Beauce, about six miles from Paris, had said openly on the day that Henry IV. was murdered, "This day the king is either slain or dangerously wounded." After the king's death was known, he was seized and sent prisoner to Paris; but, before he was examined, he was found hanged in the strings of his drawers. His body was, notwithstanding, hung up by the heels on the common gibbet on the 19th of June. What increased the suspicions

Raun || Ray.

grounded on this man's end, was his having two sons Jesuits, and his being a dependent on the family of Monsieur d'Entragues.

RAUN, upon the river Miza, a town of some strength, remarkable for a bloody skirmish between the Prussians and Austrians, in August 1744. The king of Prussia, intending to get possession of Beraun, sent thither six battalions, with eight cannon, and 800 hussars; but General Festititz being there with a great party of his corps, and M. Lucheſi with 1000 horse, they not only repulsed the Prussians, but attacked them in their turn, and, after a warm dispute, obliged them to retire with considerable loss.

RAURICUM (anc. geog.), a town of the Raurici, situated over against Abnoba, a mountain from which the Danube takes its rise. A Roman colony led by L. Manutius Plancus the scholar and friend of Cicero: called *Colonia Rauriaca* (Pliny), *Raurica* (Inscription), *Augusta Rauricorum*. The town was destroyed in Julian's time. It is now commonly called *Augst*, a village greatly decayed from what it formerly was. It is situated on the Rhine, distant about two hours to the east of Basil. The country is now the canton of Basil.

RAY (John), a celebrated botanist, was the son of Mr Roger Ray a blacksmith, and was born at Black Notly in Essex in 1628. He received the first rudiments of learning at the grammar-school at Braintree; and in 1644 was admitted into Catharine hall in Cambridge, from whence he afterwards removed to Trinity college in that university. He took the degree of master of arts, and became at length a senior fellow of the college; but his intense application to his studies having injured his health, he was obliged at his leisure hours to exercise himself by riding or walking in the fields, which led him to the study of plants. He noted from Johnson, Parkinson, and the *Phytologia Britannica*, the places where curious plants grew; and in 1658 rode from Cambridge to the city of Chester, from whence he went into North Wales, visiting many places, and among others the famous hill of Snowdon; returning by Shrewsbury and Gloucester. In 1660 he published his *Catalogus Plantarum circa Cantabrigiam nascentium*, and the same year was ordained deacon and priest. In 1661 he accompanied Francis Willoughby, Esq; and others in search of plants and other natural curiosities, in the north of England and Scotland; and the next year made a western tour from Chester, and through Wales, to Cornwall, Devonshire, Dorsetshire, Hampshire, Wiltshire, and other counties. He afterwards travelled with Mr Willoughby and other gentlemen through Holland, Germany, Italy, France, &c. took several tours in England, and was admitted fellow of the Royal Society. In 1672, his intimate and beloved friend Mr Willoughby died in the 37th year of his age, at Middleton Hall, his seat in Yorkshire; "to the infinite and unspeakable loss and grief (says Mr Ray) of myself, his friends, and all good men." There having been the closest and sincerest friendship between Mr Willoughby and Mr Ray, who were men of similar natures and tastes, from the time of their being fellow collegians, Mr Willoughby not only confided in Mr Ray, in his lifetime, but also at his death: for he made him one of the executors of his will, and charged him with the education of his sons Francis and Thomas, leaving him also for life 60 l. per annum. The eldest of these young gentlemen not being four years of age, Mr Ray, as a faithful trustee, betook himself to the instruction of them; and for their use composed his *Nomenclator Classicus*, which was published this very year, 1672. Francis the eldest dying before he was of age, the younger became Lord Middleton. Not many months after the death of Mr Willoughby, Mr Ray lost another of his best friends, bishop Wilkins; whom he visited in London the 8th of November 1672, and found near expiring by a total suppression of urine for eight days. As it is natural for the mind, when it is hurt in one part, to seek relief from another; so Mr Ray, having lost some of his best friends, and being in a manner left destitute, conceived thoughts of marriage; and accordingly, in June 1673, did actually marry a gentlewoman of about 20 years of age, the daughter of Mr Oakley of Launton in Oxfordshire. Towards the end of this year, came forth his "Observations Topographical, Moral, &c." made in foreign countries; to which was added his *Catalogus Stirpium in exteris regionibus observatarum*: and about the same time, his *Collection of unusual or local English words*, which he had gathered up in his travels through the counties of England. After having published many books on subjects foreign to his profession, he at length resolved to publish in the character of a divine, as well as in that of a natural philosopher: in which view he published his excellent demonstration of the being and attributes of God, entitled *The Wisdom of God manifested in the Works of the Creation*, 8vo, 1697. The rudiments of this work were read in some college lectures; and another collection of the same kind he enlarged and published under the title of *Three Physico-theological Discourses, concerning the Chaos, Deluge, and Dissolution of the World*, 8vo, 1692. He died in 1705. He was modest, affable, and communicative; and was distinguished by his probity, charity, sobriety, and piety. He wrote a great number of works; the principal of which, besides those already mentioned, are, 1. *Catalogus Plantarum Angliæ*. 2. *Dictionariolum Trilingue secundum locos communes*. 3. *Historia Plantarum, Species, hactenus editas, aliasque insuper multas noviter inventas et descriptas complectens*, 3 vols. 4. *Methodus Plantarum nova, cum Tabulis*, 8vo, and several other works on plants. 6. *Synopsis Methodica Animalium quadrupedum et Serpentini generis*, 8vo. 6. *Synopsis Methodica Avium et Piscium*. 7. *Historia Insectorum, opus posthumum*. 8. *Methodus Insectarum*. 9. Philosophical Letters, &c.

Ray, in optics, a beam of light emitted from a radiant or luminous body. See Light and Optics.

Inflected Rays, those rays of light which, on their near approach to the edges of bodies, in passing by them, are bent out of their course, being turned either from the body or towards it. This property of the rays of light is generally termed *diffraction* by foreigners, and Dr Hooke sometimes called it *deflection*.

Reflected Rays, those rays of light which, after falling upon the body, do not go beyond the surface of it, but are thrown back again.

Refracted Rays, those rays of light which, after falling upon any medium, enter its surface, being bent either towards or from a perpendicular to the point on which they fell.

Ray || Reading.

Pencil of Rays, a number of rays iſſuing from a point of an object, and diverging in the form of a cone.

RAZOR, a well-known inſtrument, uſed by ſurgeons, barbers, &c. for ſhaving off the hair from various parts of the body.—As ſhaving to many people is a moſt painful operation, cutlers in different countries have long applied their ſkill to remove that inconvenience. Some have invented ſoaps of a peculiar kind to make the operation more eaſy, and ſome have invented ſtraps. With reſpect to razors, ſome artiſts have ſucceeded rather by accident than from any fixed principle; and therefore we have found great inequality in the goodneſs of razors made by the ſame artiſt.

A correſpondent aſſures us, that he has for 40 years paſt been at much pains to find out razors made by the beſt makers both in England and Scotland, and was fortunate enough, about 22 years ago, to diſcover a kind made by a Scotchman of the name of *Logan*, which he called magnetical razors, becauſe they were directed to be touched with an artificial magnet before uſing. Theſe, our friend aſſures us, are moſt excellent razors, and he has uſed them for upwards of 20 years. He ſays likewiſe that they continue in good order, without requiring to be ground; but that the great draw-back on their being generally uſed, is the price, which is higher than moſt people are able or diſpoſed to give for that inſtrument. Our correſpondent, who reſides in the vicinity of London, alſo informs us, that lately the famous ſurgeon's inſtrument-maker, Mr Savigny in Pall Mall, after numberleſs experiments, in the courſe of above 20 years, has at length brought razors to a degree of perfection never yet equalled; and with ſuch certainty, that the purchaſer is in no danger of a diſappointment, though the price is very moderate. By theſe, we are told, the operation of ſhaving is performed with greater eaſe, more perfectly, and more expeditiouſly, than with any other.

RE, in grammar, an inſeparable particle added to the beginning of words to double or otherwiſe modify their meaning; as in re-action, re-move, re-export, &c.

RE-ACTION, in phyſiology, the reſiſtance made by all bodies to the action or impulſe of others that endeavour to change its ſtate whether of motion or reſt, &c.

READING, the art of delivering written language with propriety, force, and elegance.

"We muſt not judge ſo unfavourably of eloquence or good reading (ſays the illuſtrious Fenelon), as to reckon it only a frivolous art, that a declaimer uſes to impoſe upon the weak imagination of the multitude, and to ſerve his own ends. It is a very ſerious art, deſigned to inſtruct people; to ſuppreſs their paſſions and reform their manners; to ſupport the laws, direct public councils, and to make men good and happy."

1 Delivery in reading ſhould be leſs animated than in intereſted ſpeaking.

Reaſon and experience demonſtrate, that *delivery in reading ought to be leſs animated than in intereſted ſpeaking.* In every exerciſe of the faculty of ſpeech, and thoſe expreſſions of countenance and geſture with which it is generally attended, we may be conſidered to be always in one of the two following ſituations: Firſt, delivering our *beſom ſentiments* on circumſtances which relate to ourſelves or others, or, ſecondly, *repeating* ſomething that was ſpoken on a certain occaſion for the amuſement or information of an auditor. Now, if we obſerve the deliveries natural to theſe two ſituations, we ſhall find, that the firſt may be accompanied with every degree of expreſſion which can manifeſt itſelf in us, from the loweſt of ſympathy to the moſt violent and energetic of the ſuperior paſſions; while the latter, from the ſpeaker's chief buſineſs being to repeat what he heard *with accuracy*, diſcovers only a faint imitation of thoſe ſigns of the emotions which we ſuppoſe agitated him from whom the words were firſt borrowed.—The uſe and neceſſity of this difference of manner is evident; and if we are attentive to theſe natural ſigns of expreſſion, we ſhall find them conforming with the greateſt nicety to the ſlighteſt and moſt minute movements of the breaſt.

This repetition of another's words might be ſuppoſed to paſs through the mouth of a ſecond or third perſon; and in theſe caſes, ſince they were not ear and eye witneſſes of him who firſt ſpoke them, their manner of delivery would want the advantage neceſſarily ariſing from an immediate idea of the original one; hence, on this account, this would be a ſtill leſs lively repreſentation than that of the firſt *repeater*. But as, from a daily obſervation of every variety of ſpeech and its aſſociated ſigns of emotion, mankind ſoon become pretty well acquainted with them, and this in different degrees, according to their diſcernment, ſenſibility, &c. experience ſhows us that theſe latter *repeaters* (as we call them) might conceive and uſe a manner of delivery which, though leſs *characteriſtic* perhaps, would on the whole be no way inferior to the firſt, as to the *common* natural expreſſion proper for their ſituation. It appears, therefore, that repeaters *of every degree* may be eſteemed upon a level as to animation, and that our twofold diſtinction above contains accurately enough the whole variety of ordinary delivery;—we ſay *ordinary*, becauſe

There is another very peculiar kind of delivery ſometimes uſed in the perſon of a *repeater*, of which it will in this place be neceſſary to take ſome notice. What we mean here is *mimicry;* an accompliſhment which, when perfectly and properly diſplayed, never fails of yielding a high degree of pleaſure. But ſince this pleaſure chiefly reſults from the principle of *imitation* reſpecting *manner*, and not from the purport of the *matter* communicated; ſince, comparatively ſpeaking, it is only attainable by few perſons, and practiſed only on particular occaſions;—on theſe accounts it muſt be refuſed a place among the modes of uſeful delivery taught us by *general* nature, and eſteemed a qualification purely anomalous.

Theſe diſtinctions with regard to a ſpeaker's ſituation of mind premiſed, let us ſee to which of them an *author* and his *reader* may moſt properly be referred, and how they are circumſtanced with regard to one another.

The matter of all books is, either what the author ſays in his *own* perſon, or an acknowledged recital of the words of *others:* hence an author may be eſteemed both an *original* ſpeaker and a *repeater*, according as what he writes is of the firſt or ſecond kind. Now a reader muſt be ſuppoſed either actually to perſonate the author, or one whoſe office is barely to communicate what he has ſaid to an auditor. But in the firſt of theſe ſuppoſitions he would, in the delivery of what is the author's own, evidently commence *mimic;* which being, as above

Reading. above obſerved, a character not acknowledged by general nature in this department, ought to be rejected as generally improper. The other ſuppoſition therefore muſt be accounted right; and then, as to the *whole* matter of the book, the reader is found to be exactly in the ſituation of a *repeater*, ſave that he takes what he delivers from the page before him inſtead of his memory. It follows then, in proof of our initial propoſition, that, if we are directed by nature and propriety, the manner of our delivery in reading ought to be inferior in warmth and energy to what we ſhould uſe, were the language before us the ſpontaneous effuſions of our own hearts in the circumſtances of thoſe out of whoſe mouths it is ſuppoſed to proceed.

Evident as the purport of this reaſoning is, it has not ſo much as been glanced at by the writers on the ſubject we are now entered upon, or any of its kindred ones; which has occaſioned a manifeſt want of accuracy in ſeveral of their rules and obſervations. Among the reſt, this precept has been long reverberated from author to author as a perfect ſtandard for propriety in reading. "Deliver yourſelves in the ſame manner you would do, were the matter your own original ſentiments uttered directly from the heart." As all kinds of delivery muſt have many things in common, the rule will in many articles be undoubtedly right; but, from what has been ſaid above, it muſt be as certainly faulty in reſpect to ſeveral others; as it is certain nature never confounds by like ſigns two things ſo very different, as a *copy* and an *original*, an emanation darted immediately from the ſun, and its weaker appearance in the lunar reflection.

The precepts we have to offer for improving the above-mentioned rule, ſhall be delivered under the heads of *accent*, *emphaſis*, *modulation*, *expreſſion*, *pauſes*, &c.

2 Accent. I. *Accent*. In attending to the affections of the voice when we ſpeak, it is eaſy to obſerve, that, independent of any other conſideration, one part of it differs from another, in *ſtreſs*, *energy*, or *force* of utterance. In words we find one ſyllable differing from another with reſpect to this mode; and in ſentences one or more words as frequently vary from the reſt in a ſimilar manner. This ſtreſs with regard to *ſyllables* is called *accent*, and contributes greatly to the variety and harmony of language. Reſpecting *words*, it is termed *emphaſis*; and its chief office is to aſſiſt the ſenſe, force, or perſpicuity of the ſentence—of which more under the next head.

"Accent (as deſcribed in the Lectures on Elocution) is made by us two ways; either by dwelling longer upon one ſyllable than the reſt, or by giving it a ſmarter percuſſion of the voice in utterance. Of the firſt of theſe we have inſtances in the words *glōry*, *fāther*, *hōly*; of the laſt in *bat'tle*, *hab'it*, *bor'row*. So that accent with us is not referred to tune, but to time; to quantity, not quality; to the more equable or precipitate motion of the voice, not to the variation of the notes or inflexions."

In *theatric declamation*, in order to give it more pomp and ſolemnity, it is uſual to dwell longer than common upon the unaccented ſyllables; and the author now quoted has endeavoured to prove (p. 51. 54.) the practice faulty, and to ſhow (p. 55.) that "though it (i. e. true ſolemnity) may demand a ſlower utterance than uſual, yet (it) requires that the ſame proportion in point of quantity be obſerved in the ſyllables, as there is in muſical notes when the ſame tune is played in quicker or ſlower time." But that this deviation from ordinary ſpeech is not a fault, as our author aſſerts; nay, that on the contrary it is a real beauty when kept under proper regulation, the following obſervations it is hoped will ſufficiently prove.

(I.) It is a truth of the moſt obvious nature, that thoſe things which on their application to their proper ſenſes have a power of raiſing in us certain ideas and emotions, are ever *differently* modified in their conſtituent parts when different effects are produced in the mind: and alſo (II.) that, within proper bounds, were we to ſuppoſe theſe conſtituent parts to be proportionally increaſed or diminiſhed as to *quantity*, this effect would ſtill be the ſame as to *quality*.—For inſtance: The different ideas of ſtrength, ſwiftneſs, &c. which are raiſed in us by the ſame ſpecies of animals, is owing to the different form of their correſponding parts; the different effects of muſic on the paſſions, to the different airs and movements of the melody; and the different expreſſions of human ſpeech, to a difference in tone, ſpeed, &c. of the voice. And theſe peculiar effects would ſtill remain the ſame, were we to ſuppoſe the animals above alluded to, to be *greater* or *leſſer*, within their proper bounds; the movement of the muſic *quicker* or *ſlower*, provided it did not palpably interfere with that of ſome other ſpecies; and the pitch of the voice *higher* or *lower*, if not carried out of the limits in which it is obſerved on ſimilar occaſions naturally to move. Farther (III.) ſince, reſpecting the emotions more eſpecially, there are no rules to determine *à priori* what effect any particular attribute or modification of an object will have upon a percipient, our knowledge of this kind muſt evidently be gained from experience. Laſtly, (IV.) In every art imitating nature we are pleaſed to ſee the characteriſtic members of the pattern *heightened* a little farther than perhaps it ever was carried in any real example, provided it be not bordering upon ſome ludicrous and diſagreeable provinces of exceſs.

Now for the application of theſe premiſſes.—To keep pace and be conſiſtent with the *dignity* of the tragic muſe, the delivery of her language ſhould neceſſarily be dignified; and this it is plain from obſervation (I.) cannot be accompliſhed otherwiſe than by ſomething different in the manner of it from that of ordinary ſpeech; ſince *dignity* is eſſentially different from *familiarity*. But how muſt we diſcover this different manner? By attending to nature: and in this caſe ſhe tells us, that beſides uſing a *ſlower* delivery, and greater *diſtinctneſs* of the words (which every thing merely *grave* requires, and gravity is a *concomitant* of dignity, though not its *eſſence*), we muſt dwell a little *longer* upon the *unaccented* ſyllables than we do in common. As to what our author obſerves in the above quotation, of *dignity's* only requiring a *ſlower* utterance than ordinary, while the proportion of the ſyllables as to quantity continues the ſame; it is apprehended the remark (II.) reſpecting *quickneſs* and *ſlowneſs* of movement, will ſhow it to be not altogether true. For ſince the delivery is not altered in *form*, its expreſſion muſt be ſtill of the ſame kind, and perhaps what may be rightly ſuggeſted by the term *gravely familiar*.

Reading. But something farther may be yet said in defence of this *artificial* delivery, as our author calls it. Is not the movement of any thing, of whatever species, when dignified or solemn, in general of an *equable* and *deliberate* nature (as in the minuet, the military step, &c.)? And in theatrical declamation, is not the propensity to introduce this *equableness* so strong, that it is almost *impossible* to avoid it wholly, were we ever so determined to do it? If these two queries be answered in the affirmative (as we are persuaded they will), while the first supports our argument for the *propriety* of the manner of delivery in question, the second discovers a kind of *necessity* for it. And that this manner may be carried a little *farther* in quantity on the *stage* than is usual in *real life*, the principle (IV.) of heightening nature will justify, provided fashion (which has ever something to do in these articles) give it a sanction; for the *precise* quantity of several heightenings may be varied by this great legislator almost at will.

3 Emphasis. II. *Emphasis*. As *emphasis* is not a thing annexed to particular words, as *accent* is to syllables, but owes its rise chiefly to the *meaning* of a passage, and must therefore vary its seat according as that meaning varies, it will be necessary to explain a little farther the general idea given of it above.

> Of man's first disobedience, and the fruit
> Of that forbidden tree, whose mortal taste
> Brought death into the world, and all our woe, &c.
> Sing heav'nly muse, &c.

Supposing, in reference to the above well-known lines, that originally other beings, besides men, had disobeyed the commands of the Almighty, and that the circumstance were well known to us, there would fall an *emphasis* upon the word *man's* in the first line, and hence it would be read thus;

> Of *man's* first disobedience, and the fruit, &c.

But if it were a notorious truth, that mankind had transgressed in a peculiar manner more than once, the *emphasis* would fall on *first*, and the line be read,

> Of man's *first* disobedience, &c.

Again, admitting death (as was really the case) to have been an unheard-of and dreadful punishment brought upon man in consequence of his transgression; on that supposition the third line would be read,

> Brought *death* into the world, &c.

But if we were to suppose mankind knew there was such an evil as death in other regions, though the place they inhabited had been free from it till their transgression; the line would run thus,

> Brought death into the *world*, &c.

Now from a proper delivery of the above lines, with regard to any one of the suppositions we have chosen, out of several others that might in the same manner have been imagined, it will appear that the *emphasis* they illustrate is effected by a manifest *delay* in the pronunciation, and a tone something *fuller* and *louder* than is used in ordinary; and that its office is solely to determine the meaning of a sentence with reference to something said before, presupposed by the author as general knowledge, or in order to remove an ambiguity where a passage is capable of having more senses given it than one.

But, supposing in the above example, that none of the senses there pointed out were precisely the true one, and that the meaning of the lines were no other than what is obviously suggested by their simple construction; in that case it may be asked, if in reading them there should be no word dignified with the emphatical accompanyments above described?—The answer is, Not one with an emphasis of the *same* kind as that we have just been illustrating; yet it is nevertheless true, that on hearing these lines well read, we shall find some words distinguished from the rest by a manner of delivery bordering a little upon it (A). And these words will in general be such as seem the most important in the sentence, or on other accounts to merit this distinction. But as at best it only *enforces*, *graces*, or *enlivens*, and not *fixes* the meaning of any passage, and even caprice and fashion (B) have often a hand in determining its place and magnitude, it cannot properly be reckoned an *essential* of delivery. However, it is of too much moment to be neglected by those who would wish to be good readers; and, for the sake of distinction, we may not

(A) The following lines will illustrate both these kinds of stresses: For, to convey their right meaning, the word ANY is evidently to be pronounced louder and fuller than those with the accents over them.

> Get wéalth and pláce, if possible with gráce;
> If not, by ANY meáns get weálth and pláce. POPE.

This couplet is accented in the manner we find it in the *Essay on Elocution* by *Mason*. And if, according to the judgment of this author, the words thus distinguished are to have an emphatical stress, it must be of the inferior kind above-mentioned, and which a little farther on we call *emphasis of force*; while the word ANY in a different type alone possesses the other sort of energy, and which is there contradistinguished by the term *emphasis of sense*.

(B) Among a number of people who have had proper opportunities of learning to read in the best manner it is now taught, it would be difficult to find two, who, in a given instance, would use the *emphasis of force* alike, either as to place or quantity. Nay some scarce use any at all: and others will not scruple to carry it *much* beyond any thing we have a precedent for in common discourse; and even now and then throw it upon words so very trifling in themselves, that it is evident they do it with no other view, than for the sake of the *variety* it gives to the modulation.—This practice, like the introduction of discords into music, may without doubt be indulged now and then; but were it too frequent, the capital intent of these energies would manifestly either be destroyed or rendered dubious.

not unaptly denominate both the kinds of energies in question, by the terms *emphasis of sense*, and *emphasis of force* (c).

Now from the above account of these two species of emphasis it will appear, "that in reading, as in speaking, the first of them must be determined entirely by the *sense* of the passage, and always made *where*: But as to the other, *tone* alone seems to have a right of fixing its situation and quantity."— Farther: Since the more essential of these two energies is solely the work of *nature* (as appears by its being *constantly* found in the common conversation of people of all kinds of capacities and degrees of knowledge), and the most ignorant person never fails of using it *rightly* in the effusions of his own heart, it happens very luckily, and ought always to be remembered, that provided we understand what we read, and give way to the dictates of our own feeling, the *emphasis of sense* can scarce ever avoid falling spontaneously upon its proper place.

Here it will be necessary to say something by way of reply to a question which will naturally occur to the mind of every one. As the rule for the *emphasis of sense* requires we should understand what we read before it can be properly used, it is incumbent upon us never to attempt to read what we have not previously studied for that purpose? In answer to this, it must be observed, that though such a step will not be without its advantages; yet, as from the fairness of printed types, the well-known pauses of punctuation, and a long acquaintance with the phraseology and construction of our language, &c. experience tells us it is *possible* to comprehend the sense at the first reading, a previous perusal of what is to be read does not seem *necessary* to *all*, though, if they would wish to appear to advantage, it may be *expedient* to *many*; and it is this circumstance which makes us venture upon extemporary reading, and give it a place among our amusements.—Similar remarks might be made with regard to *modulation*, *expression*, &c. did not what is here observed naturally anticipate them.

4 Modulation.

III. *Modulation* (D). Every person must have observed, that, in speaking, the voice is subject to an alteration of sound, which in some measure resembles the movement of a tune. These sounds, however, are evidently nothing like so much varied as those that are strictly musical; and we have attempted to show in the preceding chapter, that, besides this, they have an essential difference in themselves. Nevertheless, from the general similitude of these two articles, they possess several terms in common; and the particular we have now to examine is in both of them called *modulation*. This affection of the voice, being totally *arbitrary*, is differently characterized in different parts of the world; and, through the power of custom, every place is inclined to think their own the only one natural and agreeable, and the rest affected with some barbarous twang or ungainly variation (E). It may be observed, however, that though there is a general uniform cast or fashion of modulation peculiar to every country, yet it by no means follows, that there is or can be any thing fixed in its application to particular passages; and therefore we find different people will, in any given instance, use modulations something different, and nevertheless be each of them equally agreeable.

But, quitting these general remarks, we shall (as our purpose requires it) consider the properties of modulation a little more minutely.

First, then, we may observe, that, in speaking, there is a particular sound (or *key-note*, as it is often called) in which the modulation for the most part runs, and to which

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(c) The first of these terms answers to the *simple emphasis* described in the *Lectures on Elocution*, and the second *nearly* to what is there called *complex*. The difference lies in this. Under *complex emphasis* the author seems (for he is far from being clear in this article) to include the *tones* simply considered of all the emotions of the mind; as well the *tender* and *languid*, as the *forcible* and *exulting*. Our term is intended to be confined to such modes of expression alone as are marked with an apparent *stress* or *increase* of the voice.

(D) The author of the *Introduction to the Art of Reading*, not allowing that there is any variation of tone, as to *high* and *low*, in the delivery of a complete period or sentence, places modulation solely in the diversification of the key-note and the variety of syllables, as to *long* or *short*, *swift* or *slow*, *strong* or *weak*, and *loud* or *soft*. As we are of a different opinion, our idea of modulation is confined purely to *harmonious inflexions of voice*. These qualities of words, it is true, add greatly both to the force and beauty of delivery; yet, since some of them are fixed and not arbitrary (as *long* and *short*), and the others (of *swift* and *slow*, *strong* and *weak*, *loud* and *soft*), may be considered as modes of expression which do not affect the modulation as to *tone*, it will agree best with our plan to esteem these properties as respectively belonging to the established laws of *pronunciation* and the *imitative* branch of expression mentioned in the end of the ensuing head.

(E) From what accounts we have remaining of the modulation of the ancients, it appears to have been highly ornamented, and apparently something not unlike our modern *recitative*; particularly that of their theatric declamation was music in its strictest sense, and accompanied with instruments. In the course of time and the progress of refinement, this modulation became gradually more and more simple, till it has now lost the genius of music, and is entirely regulated by taste. At home here, every one has heard the *sing-song* cant, as it is called, of

Ti ti dum dum, ti ti dum ti dum de,
Ti dum ti dum, ti dum ti dum dum de;

which, though disgustful now to all but mere rustics on account of its being out of fashion, was very probably the favourite modulation in which heroic verses were recited by our ancestors. So fluctuating are the taste and practices of mankind! But whether the power of language over the passions has received any advantage from the change just mentioned, will appear at least very doubtful, when we recollect the stories of its former triumphs, and the inherent charms of musical sounds.

Reading

which its occasional inflexions, either above or below, may in some respects be conceived to have a reference, like that which common music has to its key-note. Yet there is this difference between the two kinds of modulation, that whereas the first always concludes in the key-note, the other frequently concludes a little below it (F). This key-note, in speaking, is generally the sound given at the outset of every complete sentence or period; and it may be observed on some occasions to vary its pitch through the limits of a musical interval of a considerable magnitude. The tones, that fall a little lower than the key at the close of a sentence or period, are called *cadences*. These cadences, if we are accurate in our distinctions, will, with respect to their offices, be found of two kinds; though they meet so frequently together, that it may be best to conceive them only as answering a double purpose. One of these offices is to assist the sense, and the other to decorate the modulation. An account of the first may be seen in the section on *Pauses*; and the latter will be found to show itself pretty frequently in every thing grave and plaintive, or in poetic description and other highly ornamented language, where the mind is by its influence brought to feel a placid kind of dignity and satisfaction. These two cadences, therefore, may be conveniently distinguished by applying to them respectively the epithets *significant* and *ornamental*.

We have already observed, that reading should in some things differ from speaking; and the particular under consideration seems to be one which ought to vary a little in these arts. For,

Modulation in reading serves a twofold purpose. At the same time that it gives pleasure to the ear on the principles of harmony, it contributes through that medium to preserve the attention. And since written language (when not purely dramatical) is in general more elegant in its construction, and musical in its periods, than the oral one; and since many interesting particulars are wanting in reading, which are present in speaking, that contribute greatly to fix the regard of the hearer; it seems reasonable, in order to do justice to the language, and in part to supply the incitements of attention just alluded to, that in the former of these two articles a modulation should be used something more harmonious and artificial than in the latter. Agreeably to this reasoning, it is believed, we shall find every reader, on a narrow examination, adopt more or less a modulation thus ornamented: though, after all, it must be acknowledged there are better grounds to believe, that the practice has been hitherto directed intuitively by nature, than that it was discovered by the inductions of reason. We shall conclude this head with a rule for modulation in reading. "In every thing dramatic, colloquial, or of simple narrative, let your modulation be the same as in speaking; but when the subject is flowery, solemn, or dignified, add something to its harmony, diversify the key-note, and increase the frequency of cadences in proportion to the merit of the composition."

It will readily be seen, that the precepts here drawn from a comparison between speaking and reading, would be very inadequate, were they left destitute of the assistance of *taste*, and the opportunity of *frequently hearing and imitating masterly readers*. And indeed, to these two great auxiliaries we might very properly have referred the whole matter at once, as capable of giving sufficient directions, had we not remembered that our plan required us to found several of our rules as much on the principles of a philosophical analysis, as on those more familiar ones which will be found of greater efficacy in real practice.

5 Expression as to the tones of the voice.

IV. *Expression*. 1. There is no composition in music, however perfect as to key and melody, but, in order to do justice to the subject and ideas of the author, will require, in the performing, something more than an exact adherence to *tune* and *time*. This something is of a nature, too, which perhaps can never be adequately pointed out by any thing graphic, and results entirely from the taste and feeling of the performer. It is that which chiefly gives music its power over the passions, and characterises its notes with what we mean by the words *sweet*, *harsh*, *dull*, *lively*, *plaintive*, *joyous*, &c. for it is evident every sound, considered abstractedly, without any regard to the movement, or high and low, may be thus modified. In practical music, this commanding particular is called *Expression*; and as we find certain tones analogous to it frequently coalescing with the modulation of the voice, which indicate our passions and affections (thereby more particularly pointing out the meaning of what we say), the term is usually applied in the same sense to speaking and reading.

These tones are not altogether peculiar to man.—Every animal, that is not dumb, has a power of making several of them. And from their being able, unassisted by words, to manifest and raise their kindred emotions, they constitute a kind of language of themselves. In this language of the heart man is eminently conversant; for we not only understand it in one another, but also in many of the inferior creatures subjected by providence to our service.

The expression here illustrated is one of the most essential articles in good reading, since it not only gives a finishing to the sense, but, on the principles of sympathy and antipathy, has also a peculiar efficacy in interesting the heart. It is likewise an article of most difficult attainment; as it appears from what follows, that a masterly reader ought not only to be able to incorporate it with the modulation properly as to *quality*, but in any degree as to *quantity*.

Every thing written being a proper imitation of speech, expressive reading must occasionally partake of all

(F) As musical sounds have always an harmonical reference to a key or fundamental note, and to which the mind is still secretly attending, no piece of music would appear perfect, that did not close in it, and so naturally put an end to expectation. But as the tones used in speech are not musical, and therefore cannot refer harmonically to any other sound, there can be no necessity that this terminating sound (and which we immediately below term the *cadence*) should either be used at all, or follow any particular law as to form, &c. farther than what is imposed by taste and custom.

ng. all its tones. But from what was said above, of the difference between reading and speaking, it follows, that these signs of the emotions should be less strongly characterised in the former article than in the latter. Again, as several of these tones of expression are in themselves agreeable to the mind, and raise in us agreeable emotions (as those of *pity*, *benevolence*, or whatever indicates *happiness*, and *goodness* of heart), and others disagreeable (as those of a *boisterous*, *malevolent*, and *depraved* nature, &c.) it farther appears, since reading is an art *improving* and not *imitating* nature, that, in whatever degree we abate the expressions of the tones above alluded to in the first case, it would be eligible to make a greater abatement in the latter. But as to the quantities and proportional magnitudes of these abatements, they, like many other particulars of the same nature, must be left solely to the taste and judgment of the reader.

To add one more remark, which may be of service on more accounts than in suggesting another reason for the doctrine above. Let it be remembered, that tho' in order to acquit himself agreeably in this article of expression, it will be necessary every reader should *feel* his subject as well as *understand* it; yet, that he may preserve a proper ease and masterliness of delivery, it is also necessary he should guard against discovering too much emotion and perturbation.

From this reasoning we deduce the following rule, for the tones which indicate the passions and emotions.

"In reading, let all your tones of expression be borrowed from those of common speech, but something more faintly characterised. Let those tones which signify any disagreeable passion of the mind, be still more faint than those which indicate their contrary; and preserve yourself so far from being affected with the subject, as to be able to proceed through it with that peculiar kind of ease and masterliness, which has its charms in this as well as every other art."

We shall conclude this section with the following observation, which relates to speaking as well as reading. When words fall in our way, whose "sounds seem an echo to the sense," as *squirr*, *buzz*, *hum*, *rattle*, *hiss*, *jar*, &c. we ought not to pronounce them in such a manner as to heighten the imitation, except in light and ludicrous subjects. For instance, they should not in any other case be sounded *squir.r.r—buzz.z.z—hum.m.m—r.r.rattle*, &c. On the contrary, when the imitation lies in the *movement*, or *flow and structure of a whole passage* (which frequently happens in poetry), the delivery may always be allowed to give a heightening to it with the greatest propriety; as in the following instances, out of a number more which every experienced reader will quickly recollect.

In these deep solitudes and awful cells,
Where heav'nly-pensive Contemplation dwells,
And ever-musing Melancholy reigns—
Pope's Eloisa to Abelard.

With easy course
The vessels glide, unless their speed be stopp'd
By dead calms, that oft lie on these smooth seas.
Dyer's Fleece.

Softly sweet in Lydian measure,
Soon he sooth'd her soul to pleasure.
Dryden's Ode on St Cecilia's day.

Still gathering force it smokes, and, urg'd amain, Reading.
Whirls, leaps, and *thunders down impetuous to the plain.*
Pope's Iliad, B. 13.

For who to dumb forgetfulness a prey,
This pleasing anxious being ere resign'd,
Left the warm precincts of the cheerful day,
Nor cast *one longing ling'ring look behind?*
Grey's Elegy.

6 Expression as to the face and gesture.

2. Besides the particular tones and modifications of voice above described, which always accompany and express our inward agitations, nature has in these cases endowed us with another language, which, instead of the ear, addresses itself to the eye, thereby giving the communications of the heart a double advantage over those of the understanding, and *us* a double chance to preserve so inestimable a blessing. This language is what arises from the different, almost involuntary movements and configurations of the face and body in our emotions and passions, and which, like that of tones, every one is formed to understand by a kind of intuition.

When men are in any violent agitation of mind, this co-operating *expression* (as it is called) of face and gesture is very strongly marked, and totally free from the mixture of any thing which has a regard to gracefulness, or what appearance they may make in the eyes of others. But in ordinary conversation, and where the emotions are not so warm, fashionable people are perpetually insinuating, into their countenance and action, whatever they imagine will add to the ease and elegance of their deportment, or impress on the spectator an idea of their amiableness and breeding. Now, though the above-mentioned natural organical signs of the emotions should accompany every thing spoken, yet from what was observed in the introductory part of this article (like the tones we have just treated upon), they should in reading be much less strongly expressed, and those suffer the greatest diminution that are in themselves the most ungainly. And as it was in the last section recommended to the reader to preserve himself as far from being affected in all passionate subjects as to be able to keep a temperate command over the various affections of the voice, &c. so under the sanction of this subordinate feeling he may accompany his delivery more frequently with any easy action or change of face, which will contribute to set off his manner, and make it agreeable on the principles of art.

As these calm decorations of action (as we may call them) are not altogether natural, but have their rise from a kind of institution, they must be modelled by the practices of the polite. And though mankind differ from one another scarce more in any particular than in that of talents for adopting the graceful actions of the body, and hence nothing determinate can be said of their nature and frequency, yet even those, most happily calculated to acquit themselves well in their use, might profit by considering that it is better greatly to abridge the display, than to over-do it ever so little. For the peculiar modesty of deportment with which the inhabitants of this kingdom are endowed, makes us in common endeavour to suppress many signs of an agitated mind; and in such cases the bodily ones in particular are very sparingly used. We have also a natural and rooted dislike to any kind of affectation; and to no species,

figures, that we can reflect, a greater, than to shut which is seen in a person who pretends to mimicry and courtly gesture, without possessing the advantages and talents they require; and of which not many people, comparatively speaking, have any remarkable share.

The inference of this is too obvious to need drawing out, and we would particularly recommend it to the consideration of those readers who think the common occurrences of a newspaper, &c. cannot be properly delivered without a good deal of elbow-room.

Although it is impossible to come to particulars in any directions of this kind, yet there is one article of our present subject on which a serviceable remark may be made. In ordinary discourse, when we are particularly pressing and earnest in what we say, the eye is naturally thrown upon those to whom we address ourselves: And in reading, a turn of this organ now and then upon the hearers, when any thing very remarkable or interesting falls in the way, has a good effect in gaining it a proper attention, &c. But this should not be too frequently used; for if so, besides its having a tendency to confound the natural importance of different passages, it may not be altogether agreeable to some to have their own reflections broken in upon by a signal, which might be interpreted to hint at their wanting regulation.

One observation more, and then we shall attempt to recapitulate the substance of this section in the form of a precept. Though it is, when strictly examined, inconsistent, both in speaking and reading, to imitate with action what we are describing, yet as in any thing *comic* such a practice may suggest ideas that will *accord* with those of the subject, it may there be now and then indulged in either of these articles.

"In a manner similar to that directed with regard to tones, moderate your bodily expressions of the signs of the emotions. And in order to supply, as it were, this deficiency, introduce into your carriage such an easy gracefulness, as may be consistent with your acquirements in these particulars, and the necessary dread which should ever be present of falling into any kind of affectation or grimace."

V. *Pauses.* Speech consisting of a succession of distinct words, must naturally be liable (both from a kind of accident, and a difficulty there may be in beginning certain sounds or portions of phrases immediately on the ending of certain others) to several small intermissions of voice; of which, as they can have no meaning, nothing farther need here be said. There are, however, some pauses, which the sense necessarily demands; and to these the substance of this section is directed.

The pauses are in part to distinguish the members of sentences from one another, the terminations of complete periods, and to afford an opportunity for taking breath. Besides this, they have a very graceful effect in the modulation, on the same account they are so essential in music.—In both articles, like blank spaces in pictures, they set off and render more conspicuous whatsoever they disjoin or terminate.

Were language made up of nothing but short colloquial sentences, these pauses, though they might do no harm, and would generally be graceful, would however be superseded as to use by the completeness and *narrowness*, as we may say, of the meaning. But in more diffuse language, composed of several detached sentences, and which require some degree of attention in order to take in the sense, the intermissions of voice under consideration are of the greatest service, by signifying to the mind the progress and completion of the whole passage. Now, though in extensive and differently formed periods there may be members whose completeness of sense might be conceived of various degrees, and hence might seem to require a set of pauses equally numerous; yet, since the sense does not altogether depend upon these intermissions, and their ratios to one another, if capable of being properly defined, could not be accurately observed, grammarians have ventured to conceive the whole class of pauses as reducible to the four or five kinds now in use, and whose marks and ratios are well known (o); presuming that under the eye of taste; and with the assistance of a particular to be next mentioned, they would not fail in all cases to suggest intermissions of voice suitable to the sense. But in many of these extensive and complex periods, rounded with a kind of redundancy of matter, where the full sense is long suspended, and the final words are not very important, there would be some hazard of a misapprehension of the termination, had we not more evident and infallible notice of it than that which is given by the pause. This notice is the *cadence*, referred to in the section on *Modulation*; which, as is there observed, besides the ornamental variety it affords, appears from these remarks to be a very necessary and serviceable article in perspicuous delivery.

As this cadence naturally accompanies the end of every entire sense, circumstanced as above-mentioned, it may sometimes fall before the *semicolon*, but more generally before the *colon*, as well as the period: For these marks are often found to terminate a complete sense; and in these cases, the relation what follows has to what went before, is signified to the mind by the relative shortness of the stop, and the form of introducing the additional matter. Nor can any bad consequence

(o) Supposing the *comma* (,) one *time*, the *semicolon* (;) will be two; the *colon* (:) three, and the *period* (.) as also the marks of *interrogation* (?) and *admiration* (!) four of these times. The blank line (— or ---), and the *breaks* between *paragraphs*, intimate still greater times; and by the same analogy may be reckoned a double and quadruple period respectively. Now and then these blank lines are placed immediately *after* the ordinary points, and then they are conceived only as separating for the *eye* the different natures of the matter; — as a question from an answer,—precept from example,—premises from inferences, &c. in which case their import is evident. But of late some authors have not scrupled to confound these distinctions; and to make a blank serve for all the pauses universally, or the mark of an indefinite rest, the quantity of which is left to the determination of the reader's taste. A practice, it is imagined, too destructive of the intended precision of these typical notices to be much longer adopted.

quence arise from thus founding distinctions on ratios of time, which it may be said are too nice to be often rightly hit upon: for if a confusion should happen between that of the *colon* and *period*, there is perhaps so trifling a difference between the nature of the passages they succeed, as to make a small inaccuracy of no consequence. And as to the rests of the semicolon and period, it will not be easy to mistake about them, as their ratio is that of two to one. Add to this the power which the matter and introduction of the subsequent passages have to rectify any slight error here made, and we shall be fully satisfied, that the pauses as usually explained, with the cadence above described, and a proper knowledge of the language, will convey sufficient information to the understanding of the constructive nature of the passages after which they are found.

It may be observed, that in natural speech, according to the warmth and agitation of the speaker, the rests are often short and injudiciously proportioned, and hence that every thing thus delivered cannot be so graceful as it might have been from a proper attention to their magnitude and effects.

Pauses then, though chiefly subjected to the sense, are, as was remarked at the outset, serviceable in beautifying the modulation, &c.—And since books are often inaccurately printed as to points, and people's tastes differ some little about their place and value, it appears, that, "although in reading great attention should be paid to the stops, yet a greater should be given to the sense, and their corespondent times occasionally lengthened beyond what is usual in common speech;" which observation contains all that we shall pretend to lay down by way of rule for the management of pauses in the delivery of written language.

As there are two or three species of writing, which have something singular in them, and with regard to the manner in which they should be read, a few *particular* remarks seem necessarily required, we shall conclude this article with laying them before the reader:

1. Of Plays, and such like conversation-pieces. Writings of this kind may be considered as intended for two different purposes; one to unfold subject matter for the exercise of theatric powers; and the other to convey amusement, merely as fable replete with pleasing incidents and characteristic manners. Hence there appears to be great latitude for the display of a *consistent* delivery of these performances: for while, on one hand, a good reader of very inferior talents for mimicry may be heard with a tolerable degree of pleasure; on the other, if any person is qualified to give a higher degree of life and force to the dialogue and characters by delivering them as an actor, he must be fully at liberty to start from the confinement of a chair to a posture and area more suited to his abilities; and, if he be not deceived in himself, his hearers will be considerable gainers by the change.—The next article is,

2. Sermons or other orations, which in like manner may be conceived intended for a double purpose. First, as matter for the display of oratorical powers; and, secondly, as persuasive discourses, &c. which may be read like any other book. Therefore it appears (for reasons similar to those above) that according as clergymen are possessed of the talents of elocution, they may consistently either rehearse their sermons, in the manner of an extemporary harangue, or deliver them in the more humble capacity of one who is content to entertain and instruct his hearers with reading to them his own or some other person's written discourse.

That either of these manners of delivery (or a mixture of them), in either of the cases above-mentioned, is agreeable, we find on a careful examination. For this will show us how frequently they run into one another; and that we are so far from thinking such transitions wrong, that, without a particular attention that way, we scarce ever perceive them at all.

3. Poetry is the next and last object of our present remarks. This is a very peculiar kind of writing, and as much different from the language of ordinary discourse as the movements of the dance are from common walking. To ornament and improve whatever is subservient to the pleasures and amusements of life, is the delight of human nature. We are also pleased with a kind of *excess* in any thing which has a power to amuse the fancy, inspire us with enthusiasm, or awaken the soul to a consciousness of its own importance and dignity. Hence one pleasure, at least, takes its rise, that we feel in contemplating the performances of every art; and hence the language of poetry, consisting of a measured rythmus, harmonious cadences, and an elevated picturesque diction, has been studied by the ingenious, and found to have a powerful influence over the human breast in every age and region. There is such an affinity between this language and music, that they were in the earlier ages never separated; and though modern refinement has in a great measure destroyed this union, yet it is with some degree of difficulty in rehearsing these divine compositions we can forget the singing of the muse.

From these considerations (and some kindred ones mentioned in sect. iii.) in repeating verses, they are generally accompanied with a modulation rather more ornamented and musical than is used in any other kind of writing. And accordingly, as there seems to be the greatest propriety in the practice, the rule for this particular in the section just referred to, will allow any latitude in it that can gain the sanction of taste and pleasure.

Rhymes in the lighter and more soothing provinces of poetry are found to have a good effect; and hence (for reasons like those just suggested) it is certainly absurd to endeavour to smother them by a feeble pronunciation, and running one line precipitately into another, as is often affected to be done by many of our modern readers and speakers. By this method they not only destroy one source of pleasure intended by the composer (which though not great is nevertheless genuine), but even often supply its place with what is really disagreeable, by making the rhymes, as they are interruptedly perceived, appear accidental blemishes of a different style, arising from an unmeaning recurrence of similar sounds. With regard then to reading verses terminated with rhyme, the common rule, which directs to pronounce the final words *full*, and to distinguish them by a slight pause even where there is none required by the sense, seems the most rational, and consequently most worthy, of being followed. See Declamation, Narration, and Oratory.

Reading, a town of Berkshire in England, pleasantly seated on the river Kenneth, near the confluence with the Thames. It had once a fine rich monastery, of

of which there are large ruins remaining. It had also a castle built by king Henry I. but it was afterwards levelled with the ground. It is a corporation, enjoys several privileges, and sends two members to parliament. The two navigable rivers render it a fit place for trade. W. Long. 1. 0. N. Lat. 51. 25.

READINGS, or *Various Readings*, in criticism, are the different manner of reading the texts of authors in ancient manuscripts, where a diversity has arisen from the corruption of time, or the ignorance of copyists. A great part of the business of critics lies in settling the readings by confronting the various readings of the several manuscripts, and considering the agreement of the words and sense.

Readings are also used for a sort of commentary or gloss on a law, text, passage, or the like, to show the sense an author takes it in, and the application he conceives to be made of it.

RE-AGGRAVATION, in the Romish ecclesiastical law, the last monitory, published after three admonitions, and before the last excommunication. Before they proceed to fulminate the last excommunication, they publish an aggravation, and a re-aggravation. Fevret observes, that in France the minister is not allowed to come to re-aggravation, without the permission of the bishop or official, as well as that of the lay-judge. See EXCOMMUNICATION.

REAL (Cæsar Vichard de St), a polite French writer, son of a counsellor to the senate of Chamberry in Savoy. He came young to France, distinguished himself at Paris by several ingenious productions, and resided there a long time without title or dignity, intent upon literary pursuits. He died at Chamberry in 1692, advanced in years, though not in circumstances. He was a man of great parts and penetration, a lover of the sciences, and particularly fond of history. A complete edition of his works was printed at Paris, in 3 vols 4to, 1745, and another in 6 vols 12mo.

Real Presence. See TRANSUBSTANTIATION.

REALGAR. See CHEMISTRY, n° 1279.

REALISTS, a sect of school-philosophers formed in opposition to the nominalists. Under the Realists are included the Scotists, Thomists, and all excepting the followers of Ocham. Their distinguishing tenet is, that universals are realities, and have an actual existence out of an idea or imagination; or, as they express it in the schools, a *parte rei*; whereas the nominalists contend, that they exist only in the mind, and are only ideas, or manners of conceiving things — Dr Odo, or Oudard, a native of Orleans, afterwards abbot of St Martin de Tournay, was the chief of the sect of the realists. He wrote three books of dialectics, where, on the principles of Boethius and the ancients, he maintained that the object of that art is things, not words; whence the sect took its rise and name.

REALITY, in the schools, a diminutive of *res*, "thing," first used by the Scotists, to denote a thing which may exist of itself; or which has a full and absolute being of itself, and is not considered as a part of any other.

REALM, a country which gives its head or governor the denomination of a *king*.

RE-ANIMATION means the reviving or restoring to life those who are apparently dead. Sudden death is dreaded by every human being, and it is one of those evils against which the Church of England prays in her Litany. Accidents, however, cannot always be prevented; but, after they have happened, it is often possible to prevent their effects. This, by the establishment of what with great propriety has been called the *Humane Society*, has been abundantly proved: for, in the course of 12 years immediately after their institution, they were the means of saving the lives of 850 persons, who otherwise would in all human probability have been lost to the community. Since that period, they have saved many more; and various persons, even in the most distant parts of the kingdom, by following their directions, have done the same. To preserve one human being from premature death, we must consider as of the utmost consequence both as citizens and Christians; how much more the preservation of thousands. It appears from the writings of Doctors Mead, Winslow, Bruhier, Fothergill, Haller, Lecat, Tissot, Van Engelen, Gummer, and others, that they had prepared the way for institutions similar to the Humane Society: for in their works they have elucidated the principles on which they go, and furnished directions for the practice they favour. See DEATH, *Premature* INTERMENT, and DROWNING.

REAR, a term frequently used in composition, to denote something behind, or backwards, in respect of another; in opposition to *van*.

Rear of an Army, signifies, in general, the hindermost part of an army, battalion, regiment, or squadron; also the ground behind either.

Rear-Guard, is that body of an army which marches after the main-body; for the march of an army is always composed of an advance-guard, a main-body, and a rear-guard; the first and last commanded by a general. The old grand-guards of the camp always form the rear-guard of the army, and are to see that every thing come safe to the new camp.

Rear Half-files, are the three hindmost ranks of the battalion, when it is drawn up six deep

Rear-Line, of an army encamped, is always 1200 feet at left from the centre line; both of which run parallel to the front line, as also to the reserve.

Rear-Rank, is the last rank of a battalion, when drawn up, and generally 16 or 18 feet from the centre-line when drawn in open order.

REASON, a faculty or power of the mind, whereby it distinguishes good from evil, truth from falsehood. See METAPHYSICS.

REASONING, RATIOCINATION, the exercise of that faculty of the mind called *reason*; or it is an act or operation of the mind, deducing some unknown proposition from other previous ones that are evident and known. See LOGIC, Part III.

REAUMUR (Rene Antoine Ferchault, Sieur de), a person distinguished for his laborious researches into natural knowledge, was born at Rochelle in 1683, of a family belonging to the law. After having finished his early studies in the place of his birth, he began a course of philosophy at Poitiers, and of civil law at Bourges; but soon relinquished the latter, to apply himself, according to his taste, to mathematics, physics, and natural history. Being come to Paris, he was received into the Academy of Sciences in 1708. From that hour he was wholly employed in natural history, to which his inclination

clination particularly led him, and his inquiries were not confined to any one part of it. His memoirs, his observations, his discoveries on the formation of shells, spiders, muscles, the marine flea, the berry which affords the purple colour, and on the cause of the numbness of the torpedo, excited the curiosity of the public, and early procured our author the character of an able, curious, and entertaining naturalist. Filled with zeal for the welfare and advantage of society, and the progress and perfection of arts, he endeavoured in all his researches to promote the public good. We were indebted to him for the discovery of the Turquois mines in Languedoc. He also found out a substance, which is used to give false stones a colour, which is obtained from a certain fish called in the French *Able* or *Ablete* * on account of its whiteness, and which is the *Bleak* or *Blay* of our writers †. His experiments on the art of turning iron into steel obtained him a pension of 12,000 livres; and this reward was be continued to the Academy to support the expence which might accrue in this art.

He continued his inquiries on the art of making tin and porcelain‡, and endeavoured to render our thermometers more useful than those of former times: he composed a curious history of rivers where gold dust is found in France; and gave so simple and easy a detail of the art of gathering this dust, that persons have been employed for that purpose.

He also made curious and important observations on the nature of flints, on the banks of fossil shells, from whence is obtained in Touraine an excellent manure for land; as likewise on birds and their preservation, on their method of building nests; on insects; and a great number of other subjects, not less curious than useful.

He imagined at first, that a certain varnish would keep eggs fresh; but the waste of time and money, &c. showed him the inconveniences of such a process. He afterwards adopted the method practised for time immemorial in Greece and the islands of the Archipelago, which is to steep or immerse eggs in oil, or melted fat; by this means, not being exposed to the air or to frost, they are well preserved, and contract no bad smell. Another experiment still more important, made by our author, was to introduce into France the art of hatching fowl and birds, as practised in Egypt, without covering the eggs. Active, sedulous, and attentive, he was early in his study, often at six in the morning. Exact in his experiments and observations, he let no circumstance escape him. His writings must be of great use to future philosophers. In society, he was distinguished through life for his modest and agreeable behaviour. His probity, benevolence, goodness of heart, and other amiable qualities, as well natural as acquired, endeared him to his countrymen. He died in the 76th year of his age, on the 18th of October 1757, and left this world filled with sentiments of piety. His death was the consequence of a fall, which happened at the castle of Barnardiere on the Maine, where he went to pass his vacation. He bequeathed to the Academy of Sciences his manuscripts and all his natural productions. His works are, 1. A very great number of memoirs and observations on different parts of natural history; they are printed in the collections of the Academy of Sciences. 2. A large work printed separately in 6 vols in 4to, intitled, A Natural History of Insects. This important work contains a description of vast numbers of caterpillers, moths, gall insects, flies with two and four wings, lady-birds, and those ephemeron flies which live only in that form a few hours; and lastly, of those singular and wonderful insects which are called *polypes*, which being cut into several pieces, each piece lives, grows, and becomes an insect, and affords to our eyes a great number of prodigies*. The works of M. de Reaumur are exact, curious, interesting, and very ingenious. They are written with much candour, clearness, and elegance; but it must be ackowledged his manner is somewhat too diffuse. But we must not deceive the reader; he often raises our expectations, and does not give us all the satisfaction we promise ourselves from his writings. His method of raising poultry, in particular, rather disappoints us. He spared neither care, time, nor expence, to render it practicable: he flattered himself and his countrymen with the greatest hopes; but notwithstanding his assiduous industry, and vast charges, it proved abortive. The late M. l'Advocat recommended him to obtain better information from Egypt on the subject; and if possible to procure a person versed in the art to instruct him in it; but his death prevented the completion of the scheme. If the native of Egypt had arrived, showed M. de Reaumur a better method than his own, and practised it with success, as in his country, the community would have been benefited; on the other hand he would have seen, had it failed, that the climate of France was not proper for such experiments. M. Maillet, consul at Cairo, to whom Monsieur the regent had written to obtain the art, offered to send over a native of Egypt, if the government would pay the expence of his voyage, and allow him a pension of 1500 livres. M. Maillet rightly judged, when he preferred this method of proceeding. M. de Reaumur was not ignorant of the design; but he flattered himself, that his efforts would be successful without further aid, and thought he should acquire some honour. He certainly had great talents, industry, sagacity, and every other requisite which are necessary in such attempts; but it is morally impossible that a single man, in a different climate, can attain such knowledge in an art as those who live in a more favourable country, and have had the experience of many ages to profit by: however M. de Reaumur may have been unsuccessful, posterity is indebted to him for his repeated trials. He has removed some difficulties in the road, and those that travel it may discover what he only saw at a distance.

See Belon, 9.; and Hunt's Hogy, vol. iii. 315. See Cyprius, 9. See Porcelain.

* See Polypus.

REAUMURIA, in botany: A genus of the pentagynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The calyx is hexaphyllous, and there are five petals; the capsule is unilocular, quinquevalved, and polyspermous.

REBATE, or REBATEMENT, in commerce, a term much used at Amsterdam for an abatement in the price of several commodities, when the buyer, instead of taking time, advances ready money.

REBATEMENT, in heraldry, a diminution or abatement, of the bearings in a coat of arms. See ABATEMENT.

REBELLION, *Rebellio*, among the Romans, was where those who had been formerly overcome in battle, and yielded to their subjection, made a second resistance: but with us it is generally used for the taking

up of arms traitcrously against the king, whether by natural subjects, or others when once subdued; and the word *rebel* is sometimes applied to him who wilfully breaks a law; also to a villein disobeying his lord.

There is a difference between enemies and rebels. Enemies are those who are out of the king's allegiance: therefore subjects of the king, either in open war, or rebellion, are not the king's enemies, but traitors. And David Prince of Wales, who levied war against Edw. I. because he was within the allegiance of the king, had sentence pronounced against him as a traitor and rebel. Private persons may arm themselves to suppress rebels, enemies, &c.

REBELLIOUS ASSEMBLY, is a gathering together of twelve persons or more, intending or going about to practise or put in use unlawfully, of their own authority, any thing to change the law or statutes of the realm; or to destroy the inclosures of any ground, or banks of any fish-pond, pool, or conduit, to the intent the same shall lie waste and void; or to destroy the deer in any park, or any warren of conies, dove-houses, or fish in ponds; or any house, barns, mills, or bays; or to burn stacks of corn; or abate rents, or prices of victuals, &c.

REBUS, an enigmatical representation of some name, &c. by using figures or pictures instead of words, or parts of words. Camden mentions an instance of this absurd kind of wit in a gallant who expressed his love to a woman named *Rose Hill*, by painting in the border of his gown a rose, a hill, an eye, a loaf, and a well; which, in the style of the rebus, reads, "*Rose Hill I love well.*" This kind of wit was long practised by the great, who took the pains to find devices for their names. It was, however, happily ridiculed by Ben Johnson, in the humorous description of Abel Drugger's device in the Alchemist; by the Spectator, in the device of Jack of Newberry; at which time the rebus, being raised to sign-posts, was grown out of fashion at court.

REBUS is also used by the chemical writers sometimes to signify sour milk, and sometimes for what they call the ultimate matter of which all bodies are composed.

REBUS, in heraldry, a coat of arms which bears an allusion to the name of the person; as three castles, for Castleton; three cups, for Butler; three conies, for Conisby; a kind of bearings which are of great antiquity.

REBUTTER (from the Fr. *bonter*, i. e. *repellere*, to put back or bar), is the answer of defendant to plaintiff's *surrejoinder*; and plaintiff's answer to the rebutter is called a *surrebutter*: but it is very rare the parties go so far in pleading.

Rebutter is also where a man by deed or fine grants to warranty any land or hereditament to another; and the person making the warranty, or his heir, sues him to whom the warranty is made, or his heir or assignee, for the same thing; if he who is so sued plead the deed or fine with warranty, and pray judgment, if the plaintiff shall be received to demand the thing which he ought to warrant to the party against the warranty in the deed, &c. this is called a *rebutter*. And if I grant to a tenant to hold without impeachment of waste, and afterwards implead him for waste done, he may debar me of this action by shewing my grant, which is a rebutter.

RECAPITULATION, is a summary, or a concise and transient enumeration of the principal things insisted on in the preceding discourse, whereby the force of the whole is collected into one view. See ORATORY, n° 37 and 127.

RECEIPT, or RECEIT, in commerce, an acquittance, or discharge, in writing, intimating that the party has received a certain sum of money, either in full for the whole debt, or in part, or on account.

RECEIVER, in pneumatics, a glass vessel for containing the thing on which an experiment in the air-pump is to be made.

RECEIVER, *receptor* or *receptator*, in law, is commonly understood in a bad sense, and used for such as knowingly receive stolen goods from thieves, and conceal them. This crime is felony, and the punishment is transportation for 14 years.

RECENSIO was an account taken by the censors, every lustrum, of all the Roman people. It was a general survey, at which the equites, as well as the rest of the people, were to appear. New names were now put upon the censor's list, and old ones cancelled. The *recensio*, in short, was a more solemn and accurate sort of *probatio*, and answered the purpose of a review, by showing who were fit for military service.

RECEPTACULUM, in botany, one of the seven parts of fructification, defined by Linnæus to be the base which connects or supports the other parts.

RECEPTACULUM Chyli, or *Pecquet's Reservatory*, the reservoir or receptacle for the chyle, situated in the left side of the upper vertebra of the loins, under the aorta and the vessels of the left kidney.

RECHABITES, a kind of religious order among the ancient Jews, instituted by Jonadab the son of Rechab, comprehending only his own family and posterity. Their founder prescribed them three things: first, not to drink any wine; secondly, not to build any houses, but to dwell in tents; and thirdly, not to sow any corn, or plant vines.

The Rechabites observed these rules with great strictness, as appears from Jer. xxxv. 6, &c. Whence St Jerome, in his 13th epistle to Paulinus, calls them *monachi*, *monks*. Jonadab, their founder, lived under Jehoash, king of Judah, contemporary with Jehu king of Israel; his father Rechab, from whom his posterity were denominated, descended from Raguel or Jethro, father-in-law to Moses, who was a Kenite, or of the race of Ken: whence Kenite and Rechabite are used as synonymous in Scripture.

RECHEAT, in hunting, a lesson which the huntsman plays on the horn, when the hounds have lost their game, to call them back from pursuing a counter scent.

RECIPE, in medicine, a prescription, or remedy, to be taken by a patient: so called because always beginning with the word *recipe*, i. e. *take*; which is generally denoted by the abbreviature ℞.

RECIPROCAL, in general, something that is mutual, or which is returned equally on both sides, or that affects both parties alike.

RECIPROCAL Terms, among logicians, are those which have the same signification; and consequently are convertible, or may be used for each other.

RECIPROCAL, in mathematics, is applied to quanti-

ties which multiplied together produce unity. Thus $\frac{1}{x}$ and x, y and $\frac{1}{y}$, are reciprocal quantities. Likewise $\frac{1}{x}$ is said to be the reciprocal of x, which is again the reciprocal of $\frac{1}{x}$.

Reciprocal Figures, in geometry, those which have the antecedents and consequents of the same ratio in both figures.

Reciprocal Proportion, is when in four numbers the fourth is less than the second by so much as the third is greater than the first, and *vice versa*. See Proportion and Arithmetic, chap. vi. Great use is made of this reciprocal proportion by Sir Isaac Newton and others, in demonstrating the laws of motion.

RECITAL, in law, means the rehearsal or making mention in a deed or writing of something which has been done before.

RECITATIVO, or Recitative, in music, a kind of singing, that differs but little from ordinary pronunciation; such as that in which the several parts of the liturgy are rehearsed in cathedrals; or that wherein the actors commonly deliver themselves on the theatre at the opera, when they are to express some action or passion; to relate some event; or reveal some design.

RECKENHAUSEN, a strong town of Cologne, in Germany, in the middle territory of that name. The abbess of its nunnery has power of punishing offenders with death, and she alone is obliged to the vow of chastity.

RECKONING, or a *Ship's Reckoning*, in navigation, is that account whereby at any time it may be known where the ship is, and on what course or courses she is to steer, in order to gain her port; and that account taken from the log-board is called the *dead reckoning*. See Navigation.

RECLAIMING, or Reclaming, in our ancient customs, a lord's pursuing, prosecuting, and recalling, his vassal, who had gone to live in another place without his permission.

Reclaiming is also used for the demanding of a person, or thing, to be delivered up to the prince or state to which it properly belongs; when, by any irregular means, it is come into another's possession.

Reclaiming, in falconry, is taming a hawk, &c. and making her gentle and familiar.

A partridge is said to reclaim, when she calls her young ones together, upon their scattering too much from her.

RECLINATION of a plane in dialling. See Dialling.

RECLUSE, among the Papists, a person shut up in a small cell of an hermitage, or monastery, and cut off, not only from all conversation with the world, but even with the house. This is a kind of voluntary imprisonment, from a motive either of devotion or penance.

The word is also applied to incontinent wives, whom their husbands procure to be thus kept in perpetual imprisonment in some religious house.

Recluses were anciently very numerous. They took an oath never to stir out of their retreat: and having entered it, the bishop set his seal upon the door; and the recluse was to have every thing necessary for the support of life conveyed to him through a window. If he was a priest, he was allowed a small oratory, with a window, which looked into the church, through which he might make his offerings at the mass, hear the singing, and answer those who spoke to him; but this window had curtains before it, so that he could not be seen. He was allowed a little garden, adjoining to his cell, in which he might plant a few herbs, and breathe a little fresh air. If he had disciples, their cells were contiguous to his, with only a window of communication, thro' which they conveyed necessaries to him, and received his instructions. If a recluse fell sick, his door might be opened for persons to come in and assist him, but he himself was not to stir out.

RECOGNITION, in law, an acknowledgment; a word particularly used in our law-books for the first chapter of the statute 1 Jac. I. by which the parliament acknowledged, that, after the death of queen Elisabeth, the crown had rightfully descended to king James.

RECOGNIZANCE, in law, is an obligation of record, which a man enters into before some court of record or magistrate duly authorised, with condition to do some particular act; as to appear at the assizes, to keep the peace, to pay a debt, or the like. It is in most respects like another bond: the difference being chiefly this, that the bond is the creation of a fresh debt or obligation *de novo*, the recognizance is an acknowledgment of a former debt upon record; the form whereof is, "that A. B. doth acknowledge to owe to our lord the king, to the plaintiff, to C. D. or the like, the sum of ten pounds," with condition to be void on performance of the thing stipulated: in which case the king, the plaintiff, C. D. &c. is called the cognizee, *is cui cognoscitur*; as he that enters into the recognizance is called the cognizor, *is qui cognoscit*. This being certified to, or taken by the officer of some court, is witnessed only by the record of that court, and not by the party's seal: so that it is not in strict propriety a deed, though the effects of it are greater than a common obligation; being allowed a priority in point of payment, and binding the lands of the cognizor from the time of enrolment on record.

RECOIL, or Rebound, the starting backward of a fire-arm after an explosion. Mersennus tells us, that a cannon 12 feet in length, weighing 6400 lb. gives a ball of 24 lb. an uniform velocity of 640 feet *per* second. Putting, therefore, $W = 6400$, $w = 14$, $V = 640$, and $v =$ the velocity with which the cannon recoils; we shall have (because the momentums of the cannon and ball are equal) $Wv = wV$; and so $v = \frac{wV}{W} = \frac{24 \times 64}{6400} = 2{,}4$; that is, it would recoil at the rate of $2\frac{4}{10}$ feet *per* second, if free to move.

RECOLLECTION, a mode of thinking, by which ideas sought after by the mind are found and brought to view.

RECONNOITRE, in military affairs, implies to view and examine the state of things, in order to make a report thereof.

Parties ordered to reconnoitre are to observe the country and the enemy; to remark the routes, conveniences, and inconveniences of the first; the position, march, or forces of the second. In either case, they should have an expert geographer, capable of taking plans

Record. Recovery.

plans readily: he should be the best mounted of the whole, in case the enemy happen to scatter the escorts, that he may save his works and ideas. See WAR.

RECORD, an authentic testimony in writing, contained in rolls of parchment, and preserved in a court of record. See COURT.

Trial by Record, a species of trial which is used only in one particular instance: and that is where a matter of record is pleaded in any action, as a fine, a judgment, or the like; and the opposite party pleads, *nul tiel record*, that there is no such matter of record existing. Upon this, issue is tendered and joined in the following form, "and this he prays may be inquired of by the record, and the other doth the like;" and hereupon the party pleading the record has a day given him to bring it in, and proclamation is made in court for him to "bring forth the record by him in pleading alleged, or else he shall be condemned;" and, on his failure, his antagonist shall have judgment to recover. The trial, therefore, of this issue, is merely by the record: for, as Sir Edward Coke observes, a record or enrolment is a monument of so high a nature, and importeth in itself such absolute verity, that if it be pleaded that there is no such record, it shall not receive any trial by witness, jury, or otherwise, but only by itself. Thus titles of nobility, as whether earl or not earl, baron or not baron, shall be tried by the king's writ or patent only, which is matter of record. Also in case of an alien, whether alien friend or enemy, shall be tried by the league or treaty between his sovereign and ours; for every league or treaty is of record. And also, whether a manor be held in ancient demesne or not, shall be tried by the record of domesday in the king's exchequer.

RECORDER, a person whom the mayor and other magistrates of a city or corporation associate to them, for their better direction in matters of justice and proceedings in law; on which account this person is generally a counsellor, or other person well skilled in the law.

The recorder of London is chosen by the lord mayor and aldermen; and as he is held to be the mouth of the city, delivers the judgment of the courts therein, and records and certifies the city-customs. See LONDON, n. 38.

RECOVERY, or *Common RECOVERY*, in English law, a species of assurance by matter of record; concerning the original of which it must be remarked, that common recoveries were invented by the ecclesiastics to elude the statutes of mortmain (see TAIL); and afterwards encouraged by the finesse of the courts of law in 12 Edward IV. in order to put an end to all fettered inheritances, and bar not only estates-tail, but also all remainders and reversions expectant thereon. We have here, therefore, only to consider, first, the *nature* of a common recovery; and, secondly, its *force* and *effect*.

Trial by Comment.

1. A common recovery is a suit or action, either actual or fictitious: and in it the lands are recovered against the tenant of the freehold; which recovery, being a supposed abjudication of the right, binds all persons, and vests a free and absolute fee-simple in the recoverer. To explain this as clearly and concisely as possible, let us, in the first place, suppose David Edwards to be tenant of the freehold, and desirous to suffer a common recovery, in order to bar all entails, remainders, and reversions, and to convey the same in fee-simple, to Francis Golding. To effect this, Golding is to bring an action against him for the lands; and he accordingly sues out a writ called a *præcipe quod reddat*, because these were its initial or most operative words when the law-proceedings were in Latin. In this writ the demandant Golding alleges, that the defendant Edwards (here called the tenant) has no legal title to the land; but that he came into possession of it after one Hugh Hunt had turned the demandant out of it. The subsequent proceedings are made up into a record or recovery roll, in which the writ and complaint of the demandant are first recited: whereupon the tenant appears, and calls upon one Jacob Morland, who is supposed, at the original purchase, to have warranted the title to the tenant; and thereupon he prays, that the said Jacob Morland may be called in to defend the title which he so warranted. This is called the *voucher*, "vocatio," or calling of Jacob Morland to warranty; and Morland is called the *vouchee*. Upon this Jacob Morland, the vouchee, appears, is impleaded, and defends the title. Whereupon Golding the demandant desires leave of the court to imparl, or confer with the vouchee in private; which is (as usual) allowed him. And soon afterwards the demandant Golding returns to court; but Morland the vouchee disappears, or makes default. Whereupon judgment is given for the demandant Golding, now called the *recoverer*, to recover the lands in question against the tenant Edwards, who is now the recoveree: and Edwards has judgment to recover of Jacob Morland lands of equal value, in recompense for the lands so warranted by him, and now lost by his default; which is agreeable to the doctrine of warranty mentioned in the preceding chapter. This is called the *recompense*, or *recovery in value*. But Jacob Morland having no lands of his own, being usually the crier of the court, who, from being frequently thus vouched, is called the *common vouchee*, it is plain that Edwards has only a nominal recompense for the lands so recovered against him by Golding; which lands are now absolutely vested in the said recoverer by judgment of law, and seisin thereof is delivered by the sheriff of the county. So that this collusive recovery operates merely in the nature of a conveyance in fee-simple, from Edwards the tenant in tail to Golding the purchaser.

The recovery here described, is with a single voucher only; but sometimes it is with a double, treble, or farther voucher, as the exigency of the case may require. And indeed it is now usual always to have a recovery with double voucher at the least: by first conveying an estate of freehold to any indifferent person, against whom the *præcipe* is brought; and then he vouches the tenant in tail, who vouches over the common vouchee. For, if a recovery be had immediately against tenant in tail, it bars only such estate in the premises of which he is then actually seised; whereas if the recovery be had against another person, and the tenant in tail be vouched, it bars every latent right and interest which he may have in the lands recovered. If Edwards therefore be tenant of the freehold in possession, and John Barker be tenant in tail in remainder, here Edwards doth first vouch Barker, and then Barker vouches Jacob Morland the common vouchee; who is always the last person vouched, and always makes default; whereby the demandant Golding recovers the land against the tenant

Edwards, and Edwards recovers a recompense of equal value against Barker the first vouchee; who recovers the like against Morland the common vouchee, against whom such ideal recovery in value is always ultimately awarded.

This supposed recompense in value is the reason why the issue in tail is held to be barred by a common recovery. For, if the recoveree should obtain a recompense in lands from the common vouchee (which there is a possibility in contemplation of law, though a very improbable one, of his doing), these lands would supply the place of those so recovered from him by collusion, and would descend to the issue in tail. The reason will also hold with equal force as to most remainder-men and reversioners, to whom the possibility will remain and revert, as a full recompense for the reality which they were otherwise entitled to: but it will not always hold; and therefore, as Pigott says, the judges have been even *astuti*, in inventing other reasons to maintain the authority of recoveries. And, in particular, it hath been said, that though the estate-tail is gone from the recoveree; yet it is not destroyed, but only transferred, and still subsists; and will ever continue to subsist (by construction of law) in the recoveror, his heirs and assigns: and as the estate-tail so continues to subsist for ever, the remainders or reversions expectant on the determination of such estate-tail can never take place.

To such awkward shifts, such subtile refinements, and such strange reasoning, were our ancestors obliged to have recourse, in order to get the better of that stubborn statute *de donis*. The design for which these contrivances were set on foot, was certainly laudable; the unrivetting the fetters of estates-tail, which were attended with a legion of mischiefs to the commonwealth: but, while we applaud the end, we cannot but admire the means. Our modern courts of justice have indeed adopted a more manly way of treating the subject; by considering common recoveries in no other light than as the formal mode of conveyance by which tenant in tail is enabled to aliene his lands. But, since the ill consequences of fettered inheritances are now generally seen and allowed, and of course the utility and expedience of setting them at liberty are apparent, it hath often been wished that the process of this conveyance was shortened, and rendered less subject to niceties, by either totally repealing the statute *de donis*; which perhaps, by reviving the old doctrine of conditional fees, might give birth to many litigations: or by vesting in every tenant in tail, of full age, the same absolute fee-simple at once, which now he may obtain whenever he pleases, by the collusive fiction of a common recovery; though this might possibly bear hard upon those in remainder or reversion, by abridging the chances they would otherwise frequently have, as no recovery can be suffered in the intervals between term and term, which sometimes continue for near five months together: or, lastly, by empowering the tenant in tail to bar the estate-tail by a solemn deed, to be made in term-time, and enrolled in some court of record; which is liable to neither of the other objections, and is warranted not only by the usage of our American colonies, but by the precedent of the statute 21 Jac. I. c. 19. which, in the case of a bankrupt tenant in tail, empowers his commissioners to sell the estate at any time, by deed indented and enrolled. And if, in so national a concern, the emoluments of the officers concerned in passing recoveries are thought to be worthy attention, those might be provided for in the fees to be paid upon each enrollment.

2. The force and effect of common recoveries may appear, from what has been said, to be an absolute bar not only of all estates tail, but of remainders and reversions expectant on the determination of such estates. So that a tenant in tail may, by this method of assurance, convey the lands held in tail to the recoverer, his heirs and assigns, absolutely free and discharged of all conditions and limitations in tail, and of all remainders and reversions. But, by statute 34 & 35 H. VIII. c. 20. no recovery had against tenant in tail of the king's gift, whereof the remainder or reversion is in the king, shall bar such estate-tail, or the remainder or reversion of the crown. And by the statute 11 H. VII. c. 20. no woman, after her husband's death, shall suffer a recovery of lands settled on her by her husband, or settled on her husband and her by any of his ancestors. And by statute 14 Eliz. c. 8. no tenant for life, of any sort, can suffer a recovery so as to bind them in remainder or reversion. For which reason, if there be tenant for life, with remainder in tail, and other remainders over, and the tenant for life is desirous to suffer a valid recovery, either he, or the tenant to the *præcipe* by him made, must vouch the remainder-man in tail, otherwise the recovery is void: but if he does vouch such remainder-man, and he appears and vouches the common vouchee, it is then good; for if a man be vouched and appears, and suffers the recovery to be had, it is as effectual to bar the estate-tail as if he himself were the recoveree.

In all recoveries, it is necessary that the recoveree, or tenant to the *præcipe*, as he is usually called, be actually seised of the freehold, else the recovery is void. For all actions to recover the seisin of lands must be brought against the actual tenant of the freehold, else the suit will lose its effect; since the freehold cannot be recovered of him who has it not. And, though these recoveries are in themselves fabulous and fictitious, yet it is necessary that there be *actores fabulæ*, properly qualified. But the nicety thought by some modern practitioners to be requisite in conveying the legal freehold, in order to make a good tenant to the *præcipe*, is removed by the provisions of the statute 14 Geo. II. c. 20. which enacts, with a retrospect and conformity to the ancient rule of law, that, though the legal freehold be vested in lessees, yet those who are entitled to the next freehold estate in remainder, or reversion, may make a good tenant to the *præcipe*: and that, though the deed or fine which creates such tenant be subsequent to the judgment of recovery, yet if it be in the same term, the recovery shall be valid in law: and that though the recovery itself do not appear to be entered, or be not regularly entered on record, yet the deed to make a tenant to the *præcipe*, and declare the uses of the recovery, shall after a possession of 20 years be sufficient evidence on behalf of a purchaser for valuable consideration, that such recovery was duly suffered.

Recovery of persons drowned, or apparently dead. See Re-animation, and the articles there referred to.

RECREANT, Cowardly, *Faint-hearted*, formerly a word very reproachful. See Battel.

RECREMENT, in chemistry, some superfluous matter separated from some other that is useful: in which

which ſenſe it is the ſame with *ſcoriæ*, *fæces*, and *excrements*.

RECRIMINATION, in law, an accuſation brought by the accuſed againſt the accuſer upon the ſame fact.

RECRUITS, in military affairs, new-raiſed ſoldiers deſigned to ſupply the place of thoſe who have loſt their lives in the ſervice, or who are diſabled by age or wounds.

RECTANGLE, in geometry, the ſame with a right-angled parallelogram. See GEOMETRY.

RECTIFICATION, in chemiſtry, is nothing but the repetition of a diſtillation or ſublimation ſeveral times, in order to render the ſubſtance purer, finer, and freer from aqueous and earthy parts.

Rectification of Spirits. See DISTILLATION.

RECTIFIER, in navigation, an inſtrument conſiſting of two parts, which are two circles, either laid one upon, or let into the other, and ſo faſtened together in their centres, that they repreſent two compaſſes, one fixed, the other moveable; each of them divided into the 32 points of the compaſs, and 360°, and numbered both ways, from the north and the ſouth, ending at the eaſt and weſt, in 90°.

The fixed compaſs repreſents the horizon, in which the north and all the other points of the compaſs are fixed and immoveable.

The moveable compaſs repreſents the mariner's compaſs; in which the north and all other points are liable to variation.

In the centre of the moveable compaſs is faſtened a ſilk thread, long enough to reach the outſide of the fixed compaſs. But if the inſtrument be made of wood, there is an index inſtead of the thread.

Its uſe is to find the variation of the compaſs, to rectify the courſe at ſea; having the amplitude or azimuth given.

RECTIFYING the GLOBE. See GEOGRAPHY, p. 656.

RECTILINEAR, in geometry, right-lined; thus figures whoſe perimeter conſiſts of right lines, are ſaid to be rectilinear.

RECTITUDE, in philoſophy, refers either to the act of judging or of willing; and therefore whatever comes under the denomination of rectitude, is either what is true or what is good, theſe being the only objects about which the mind exerciſes its two faculties of judging and willing.

Moral rectitude, or uprightneſs, is the chooſing and purſuing thoſe things which the mind, upon due inquiry and attention, clearly perceives to be good; and avoiding thoſe that are evil. See *Moral Philoſophy*.

RECTOR, a term applied to ſeveral perſons whoſe offices are very different: as, 1. The rector of a pariſh is a clergyman that has the charge and cure of a pariſh, and poſſeſſes all the tithes, &c. 2. The ſame name is alſo given to the chief elective officer in ſeveral foreign univerſities, particularly in that of Paris, and alſo in thoſe of Scotland. It is alſo applied to the head maſter of large ſchools in Scotland, as in the high ſchool of Edinburgh. 3. Rector is alſo uſed in ſeveral convents for the ſuperior officer who governs the houſe: and the Jeſuits give this name to the ſuperiors of ſuch of their houſes as are either ſeminaries or colleges.

RECTORY, a pariſh-church, parſonage, or ſpiritual living, with all its rights, tithes, and glebes.

RECTORY is alſo ſometimes uſed for the rector's manſion or parſonage-houſe.

RECTUM, in anatomy, the third and laſt of the large inteſtines or guts. See ANATOMY, n 93.

RECTUS, in anatomy, a name common to ſeveral pairs of muſcles, ſo called on account of the ſtraightneſs of their fibres.

RECUPERATORES, among the Romans, were commiſſioners appointed to take cognizance of private matters in diſpute, between the ſubjects of the ſtate and foreigners, and to take care that the former had juſtice done them. It came at laſt to be uſed for commiſſioners, to whom the prætor referred the determination of any affair between one ſubject and another.

RECURRENTS, in anatomy, a name given to ſeveral large branches of nerves ſent out by the par vagum from the upper part of the thorax to the larynx.

RECURVIROSTRA, in ornithology; a genus belonging to the order of grallæ of Linnæus, and that of palmipedes of Pennant and Latham. The bill is long, ſubulated, bent back, ſharp and flexible at the point. The feet are webbed, and furniſhed with three toes forwards, and a ſhort one behind. Mr Latham notes of this genus three ſpecies, viz. the Avoſetta, or the one commonly known, the Americana, and the Alba. This laſt, it is probable, has ſome affinity to the Americana. The recurviroſtra avoſetta is about the ſize of a lapwing in body, but has very long legs. The ſubſtance of the bill is ſoft, and almoſt membranous at its tip; it is thin, weak, ſlender, compreſſed horizontally, and incapable of defence or effort. Theſe birds are variegated with black and white, and during the winter are frequent on the eaſtern ſhores of Great Britain. They viſit alſo the Severn, and ſometimes the pools of Shropſhire. They feed on worms and inſects, which they ſcoop out of the ſand with their bills. They lay two eggs, white, with a greeniſh hue, and large ſpots of black; theſe eggs are about the ſize of a pigeon's.—They are found alſo in various parts of the continent of Europe, in Ruſſia, Denmark, and Sweden, but they are not numerous. They are alſo found in Siberia, but oftener about the ſalt lakes of the Tartarian deſert, and about the Caſpian ſea. They are found likewiſe on the coaſts of Picardy in France in April and November, and at Orleans, but rarely. In breeding-time they are very plentiful on the coaſts of Bas Poictou. They do not appear to wander farther ſouth in Europe than Italy. Whether from timidity or addreſs, the avoſet ſhuns ſnares, and is not eaſily taken. The American avoſet is rather larger and longer than the laſt. The bill is ſimilar, and its colour black: the forehead is duſky white: the head, neck, and upper part of the breaſt, are of a deep cream-colour: the lower parts of the neck behind white: the back is black, and the under parts from the breaſt pure white: the wings are partly black, partly white, and partly aſh-coloured. Theſe birds inhabit North America, and were found by Dampier in Shark's Bay, on the coaſt of New Holland. See Plate CCCCXXXV.

The recurviroſtra, or ſcolopax alba, is about 14 inches and a quarter long, its colour white, the inferior coverts of its wings duſkiſh, its bill orange, its legs brown. Edwards remarks, that the bill of this bird is bent upwards, as in the avoſet; its bill black at the tip, and orange the reſt of its length; all the plumage is white, except

except a tint of yellowiſh on the great quills of the wing and of the tail. Edwards ſuppoſes, that the whiteneſs is produced by the cold climate of Hudſon's Bay, from which he received it, and that they reſume their brown feathers during the ſummer. It appears that ſeveral ſpecies of this bird have ſpread further into America, and have even reached the ſouthern provinces: for Sloane found our third ſpecies in Jamaica; and Fernandez ſeems to indicate two of them in New Spain, by the names *chiquatototl* and *elotototl*; the former being like our woodcock, and the latter lodging under the ſtalks of maize.

A bird of this kind, Mr Latham ſays, was ſent from Hudſon's Bay, and from the figure, has every appearance of an avoſet: however, in Edwards's plate, the toes appear cloven to the bottom; a circumſtance ſeeming to overturn the ſuppoſition, and only to be authenticated when other ſpecimens ſhall have come under the eye of the well-informed naturaliſt.

RECUSANTS, ſuch perſons as acknowledge the pope to be the ſupreme head of the church, and refuſe to acknowledge the king's ſupremacy; who are hence called *Popiſh recuſants*. The penal laws againſt Papiſts are now aboliſhed in Britain and in Ireland; and in all probability they will quickly be allowed the ampleſt privileges.

RED, one of the colours called *ſimple* or *primary*: being one of the ſhades into which the light naturally divides itſelf when refracted through a priſm. See CHROMATICS.

RED, in dyeing, ſee that article.—Some reckon ſix kinds or caſts of red, viz. ſcarlet-red, crimſon-red, madder-red, half-grain red, lively orange-red, and ſcarlet of cochineal: but it is eaſy to ſee that there can be but one proper ſpecies of red; namely, the reflection of the light exactly in ſuch a manner as it is refracted by the priſm; all other ſhades being adulterations of that pure colour, with yellow, brown, &c.

RED, in heraldry. See GULES.

RED-Bird. See MUSCICAPA, n° 7.

RED-Breaſt, in ornithology. See MOTACILLA.

RED-Book of the exchequer, an ancient record or manuſcript volume, in the keeping of the king's remembrancer, containing divers miſcellany treatiſes relating to the times before the conqueſt.

RED-Lead. See CHEMISTRY, n° 1213.

RED Precipitate of Mercury. See CHEMISTRY, n° 764.

RED-Ruſſia, or *Little Ruſſia*, a province of Poland, bounded on the weſt by Upper Poland, on the north by Lithuania, on the eaſt by the country of the Little Tartars, and on the ſouth by Moldavia, Tranſylvania, and a part of Hungary. It comprehends Ruſſia properly ſo called, Volhinia, and Podolia. It is about 650 miles in length, and from 150 to 250 in breadth. It conſiſts chiefly of large fields, but little cultivated on account of the frequent inroads of the Tartars, and becauſe there is no water-carriage. It had the name of *Red Ruſſia*, from the colour of the hair of its inhabitants. Ruſſia, properly ſo called, comprehends the three palatinates of Leopol or Lemburg, Belſko, and Chelm.

RED-Sea, or *Arabic Gulph*, ſo much celebrated in ſacred hiſtory, ſeparates Arabia from Upper Ethiopia and part of Egypt. This ſea is 350 leagues in length and 40 in breadth. As no river falls into it of ſufficient force to counteract the influence of the tide, it is more affected by the motions of the great ocean than any of the inland ſeas nearly in the ſame latitude. It is not much expoſed to tempeſts: the winds uſually blow from north to ſouth, and being periodical, like the monſoons of India, invariably determine the ſeaſon of ſailing into or out of this ſea. It is divided into two gulphs; that to the eaſt was called the *Ælanitic gulph*, from the city Ælana at the north end of it; and that to the weſt the *Heroopolitic*, from the city of Heroopolis; the former of which belongs to Arabia, and the latter to Egypt.

Mr Bruce has made many obſervations on this ſea, which are worthy of notice.—With regard to the name, he ſays it was certainly derived from Edom or Eſau the ſon of Jacob; though in another place he ſays, he wonders that writers have not rather ſuppoſed it to have got the epithet of *Red*, from the colour of the ſand on its coaſts, than for other reaſons they have alleged. With regard to any redneſs in the water itſelf, or in the bottom, which ſome have aſſerted, our traveller aſſures us that there is no ſuch thing. It is more difficult to aſſign a reaſon for the Hebrew name of it, which ſignifies the *Sea of Weeds*; as he never ſaw a weed throughout the whole extent of it. "Indeed, (ſays he) upon the ſlighteſt conſideration, it will occur to any one, that a narrow gulph, under the immediate influence of the monſoons, blowing from contrary points ſix months each year, would have too much agitation to produce ſuch vegetables, ſeldom found but in ſtagnant waters, and ſeldom, if ever, found in ſalt ones. My opinion then is, that it is from the large trees or plants of white coral, ſpread everywhere over the bottom of the Red Sea, perfectly in imitation of plants on land, that the ſea has obtained this name.—I ſaw one of theſe, which, from a root nearly central, threw out ramifications of an almoſt circular form, meaſuring 26 feet every way."

Our author has alſo made many uſeful obſervations on the navigation of this ſea. "All the weſtern ſhore (he ſays) is bold, and has more depth of water than the eaſt; but on this ſide there is neither anchoring ground nor ſhoals. It is rocky, with a conſiderable depth of water everywhere; and there are a number of ſunken rocks, which, though not viſible, are ſufficiently near the ſurface to deſtroy a large ſhip." The cauſe of this, in Mr Bruce's opinion, is, that the mountains on the ſide of Abyſſinia and Egypt are all of hard ſtone, porphyry, many different kinds of marble, granite, alabaſter, and baſaltes. Theſe being all compoſed of ſolid materials, therefore, can part with very little duſt or ſand, which might otherwiſe be blown from them into the ſea. On the oppoſite coaſt, viz. that of Hejaz and Tahamah, on the Arabian ſide, the whole conſiſts of moving ſands; a large quantity of which is blown from the ſouth-eaſt by the dry winter monſoons; which being lodged among the rocks on that ſide, and confined there by the north-eaſt or ſummer monſoon, which is in a contrary direction, hinders them from coming over to the Egyptian ſide. Hence the weſtern coaſt is full of ſunk rocks for want of ſand to cover them, with which they would otherwiſe become iſlands. They are naked and bare all round, with ſharp points like ſpears; while, on the eaſt-ſide, every rock becomes an

an island, and every two or three islands become an harbour. On the ends of the principal of these harbours the people have piled up great heaps of stones to serve as signals: "and it is in these (says Mr Bruce) that the large vessels from Cairo to Jidda, equal in size to our large 74 gun-ships (but from the cisterns of masonry-work built within for holding water, I suppose double their weight), after navigating their portion of the channel in the day-time, come safely and quietly to at four o'clock in the afternoon; and in these little harbours pass the night, to sail into the channel again next morning."

The western channel of the Red Sea was chosen, in the days of the Ptolemies, for the track of the Indian and African. These monarchs erected a great number of cities all along the western coast; and notwithstanding the dangers of the navigation, we do not hear that it was ever abandoned on account of them.

From the observations made by our author on the navigation of the Red Sea, he undertakes to point out a safe passage for large ships to the gulph of Suez, so that they may be able to judge of the propriety of their own course themselves, without trusting implicitly to the pilots they meet with, who are often very ignorant of their profession. This sea, according to Mr Bruce, may be divided into four parts, of which the channel occupies two, till near the latitude of 26°, or that of Coffair. On the west it is deep water, with many rocks; and on the east it is full of islands, as has been already mentioned. Between these islands there are channels and harbours of deep water, where ships may be protected in any wind; but a pilot is necessary in sailing among these from Mocha to Suez, and the voyage besides can be continued only during part of the day. Ships bound to Suez without the consent of the Sheriffe of Mecca, that is, without any intention of selling their cargo at Jidda, or paying custom there, ought to take in their fresh water at Mocha; or if there be any reason against this, a few hours will carry them to Azab or Saba on the Abyssinian coast, where they may be plentifully supplied: but it must be remembered, "that the people here are *Galla*, the most treacherous and villanous wretches on earth." Here not only water may be procured, but plenty of sheep, goats, with some myrrh, and incense in the proper season.—Great caution, however, must be used in dealing with the people, as even those of Mocha, who are absolutely necessary to them in their commercial dealings, cannot trust them without surety or hostages. Not many years ago, the surgeon and mate of the Elgin East Indiaman, with several other sailors, were murdered by these savages as they went alone to purchase myrrh, though they had a letter of safe conduct from the shekh.

To such as do not want to be known, our author recommends a low black island on the coast of Arabia, named *Camaran*, in latitude 15° 30′. It is distinguished by a white house or fortress on the west end of it; where water is to be had in still greater plenty than at Azab; but no provisions, or such only as are very bad, can be procured. If it is necessary not to be seen at all on the coast, the island of Foosht is recommended by our author as having excellent water, with a saint or monk, whose office is to keep the wells clean. This is one of the chain of islands which stretches almost across the gulph from Loheia to Mafaah, and from actual observation by Mr Bruce, is found to be situated in N. Lat. 15′ 59′ 43″. E. Long. 42° 47′. From this to Yambo there is a safe watering-place; and there is an absolute necessity for having a pilot before you come to Ras Mahomet; because, over the Ælanitic gulph, the mountains of Aucha, and the Cape itself, there is often a thick haze which lasts for many days together, and a number of ships are lost by mistaking the eastern bay or Ælanitic gulph for the entrance of the gulph of Suez; the former has a ridge of rocks nearly across it. After reaching Sheduan, a large island, about three leagues farther in a north by west direction, there is a bare rock distinguished by no particular name; but so situated that ships ought not to come within three leagues of it. This rock is to be left to the westward at the distance just mentioned; after passing which you meet with shoals forming a pretty broad channel, with soundings from 15 to 30 fathoms; and again, on standing directly for Tor, there are two other oval sands with sunk rocks in the channel, between which you are to steer. Tor may be known at a distance by two hills that stand near the water side; which, in clear weather, may be seen six leagues off. Just to the south-east of these is the town and harbour, where there are some palm-trees about the houses, the more remarkable, as being the first that are seen on the coast. The soundings in the way to Tor harbour are clean and regular; "and, by giving the beacon a small birth on the larboard hand, you may haul in a little to the northward, and anchor in five or six fathom." In spring-tides, it is high water at Tor nearly about 12 o'clock: in the middle of the gulph there is no perceptible tide, but at the sides it runs at the rate of more than two knots in the hour. Tor itself is but a small village, with a convent of monks belonging to those of Mount Sinai. It was taken by Don John de Castro, and fortified soon after its discovery by the Portuguese; but has never since been a place of any consideration; serving now only for a watering place to the ships trading to or from Suez.—From this place there is a distinct view of mounts Horeb and Sinai, which appear above and behind the others, with their tops frequently covered with snow in the winter.

Mr Bruce next proceeds to consider some questions which may be reckoned matters of curiosity rather than any thing else. One of these is concerning the level of the water of this sea itself, which has been supposed several feet above that of the Mediterranean. "To this (says our author) I answer, that the fact has been supposed to be so by antiquity, and alleged as a reason why Ptolemy's canal was made from the bottom of the Heroopolitic gulph rather than brought due north across the isthmus of Suez; in which last case it was feared it would submerge a great part of Asia Minor. But who has ever attempted to verify this by experiment? or who is capable of settling the difference of levels, amounting, as supposed, to some feet and inches, between two points 120 miles distant from each other, over a desert that has no settled surface, but is changing its height every day? Besides, since all seas are in fact but one, what is it that hinders the Indian ocean to flow to its level? What is it that keeps the Indian ocean up? Till this last branch of the question is resolved, I shall take it for granted that no such difference

of level exists, whatever Ptolemy's engineers might have pretended to him; because, to suppose it fact, is to suppose the violation of one very material law of nature."

The next thing considered by our author is the passage of the Israelites through the Red Sea. At the place where he supposes the passage to have been, the sea is not quite four leagues broad, so that it might easily have been crossed in one night without any miracle. There is about 14 fathom water in the channel, and 9 at the sides, with good anchorage everywhere; the farthest side is a low sandy coast, and a very easy landing place. "The draught of the bottom of the gulph (says he) given by Dr Pococke, is very erroneous in every part of it. It was proposed to Mr Niebuhr, when in Egypt, to inquire upon the spot, whether there were not some ridges of rocks where the water was shallow, so that an army at particular times might pass over? Secondly, whether the Etesian winds, which blow strongly all summer from the north-west, could not blow so violently against the sea, as to keep it back on a heap, so that the Israelites might have passed without a miracle? And a copy of these queries was left for me to join my inquiries likewise. But I must confess, however learned the gentlemen were who proposed these doubts, I did not think they merited any attention to solve them. If the Etesian winds, blowing from the north-west in summer, could heap up the sea as a wall on the right or to the south, of 50 feet high, still the difficulty would remain of building the wall on the left hand or to the north. Besides, water standing in that position for a day, must have lost the nature of a fluid. Whence came that cohesion of particles that hindered that wall to escape at the sides? This is as great a miracle as that of Moses. If the Etesian winds had done this once, they must have repeated it many a time before and since, from the same causes. Yet Diodorus Siculus says, the Troglodytes, the indigenous inhabitants of that very spot, had a tradition from father to son, from their very earliest and remotest ages, that once this division of the sea did happen there; and that, after leaving the bottom some time dry, the sea again came back and covered it with great fury. The words of this author are of the most remarkable kind. We cannot think this heathen is writing in favour of revelation. He knew not Moses, nor says a word about Pharaoh and his host; but records the miracle of the division of the sea in words nearly as strong as those of Moses, from the mouths of unbiassed undesigning pagans."

Red-Shank, in ornithology. See SCOLOPAX.

Red-Start, a species of MOTACILLA.

Red-Wing. See TURDUS.

REDANS, in field fortification. See the article REDENS.

REDDENDUM, in law, is used substantively for the clause in a lease wherein the rent is reserved to the lessor. The proper place for it is next after the limitation of estate.

REDDITIO, was the third part of the sacrifice of the heathens, and consisted of the solemn act of putting in again the entrails of the victims, after they had been religiously inspected. See SACRIFICE.

REDDLE, a soft, heavy, red marle, of great use in colouring; and being washed and freed from sand, is often sold by our druggists under the name of *bole armenic*.

REDEMPTION, in law, a faculty or right of re-entering upon lands, &c. that have been sold and assigned, upon reimbursing the purchase-money with legal costs.

REDEMPTION, in theology, denotes the recovery of mankind from sin and death, by the obedience and sacrifice of Christ, who on this account is called the *Redeemer of the world*. See THEOLOGY.

REDENS, REDANS, or *Redant*, in fortification, a kind of work indented in form of the teeth of a saw, with saliant and re-entering angles; to the end that one part may flank or defend another. It is likewise called *saw-work* and *indented work*. The lines or faces in this flank one another.

Redens are used in fortifying walls, where it is not necessary to be at the expence of building bastions; as when they stand on the side of a river running through a garrison town, a marsh, the sea, &c. But the fault of such fortification is, that the besiegers from one battery may ruin both the sides of the tenaille or front of a place, and make an assault without fear of being enfiladed, since the defences are mined. The parapet of the corridor is likewise often redented or carried on by the way of redens. The redens was used before bastions were invented, and some people think them preferable.

REDI (Francis), an Italian physician and polite scholar, was born at Arezzo in Tuscany in 1626. His ingenuity and learning recommended him to the office of first physician to Ferdinand II. duke of Tuscany; and he contributed not a little toward the compiling of the Dictionary of La Crusca. He wrote upon vipers, upon the generation of insects, and composed a good deal of poetry. All his writings are in Italian; and his language is so fine and pure, that the authors of the Dictionary of La Crusca have often cited them as standards of perfection. He died in 1697.

REDOUBT, in fortification, a small square fort, without any defence but in front; used in trenches, lines of circumvallation, contravallation, and approach; as also for the lodgings of corps-de-gard, and to defend passages.

REDUCTION, in the schools, a manner of bringing a term or proposition, which was before opposite to some other, to be equivalent to it.

REDUCTION, in arithmetic, that rule whereby numbers of different denominations are brought into one denomination. See ARITHMETIC.

Reduction of Equations, in algebra, is the clearing them from all superfluous quantities, bringing them to their lowest terms, and separating the known from the unknown, till at length only the unknown quantity is found on one side, and known ones on the other. The reduction of an equation is the last part of the resolution of the problem. See ALGEBRA.

REDUCTION of a figure, design, or draught, is the making a copy thereof, either larger or smaller than the original; still preserving the form and proportion. The great use of the proportional compasses is the reduction of figures, &c. whence they are called *compasses of reduction*. See the article COMPASS.

There are various methods of reducing figures, &c.

Reduction || Redundant.

the most easy is by means of the pentagraph, or parallelogram; but this hath its defects. See the article PENTAGRAPH.

Plate CCCCXXXV.

The best and most usual methods of reduction are as follow: 1. To reduce a figure, as ABCDE (nº 1.), into a less compass. About the middle of the figure, as z, pitch on a point, and from this point draw lines to its several angles A, B, C, &c. then drawing the line *a b* parallel to AB, *b c* parallel to BC, &c. you will have the figure *a b c d e* similar to ABCDE.

If the figure *a b c d e* had been required to be enlarged, there needed nothing but to produce the lines from the point beyond the angles, as z D, z C, &c. and to draw lines, viz. DC, CB, &c. parallel to the sides *d c*, *c b*, &c.

2. To reduce a figure by the angle of proportion, suppose the figure ABCDE (nº 2.) required to be diminished in the proportion of the line AB to *a b* (nº 3.), draw the indefinite line GH (nº 4.), and from G to H set off the line AB. On G describe the arch HI. Set off the line *a b* as a chord on HI, and draw GI. Then with the angle IGH, you have all the measures of the figure to be drawn. Thus to lay down the point *c*, take the interval BC, and upon the point G describe the arch KL. Also on the point G describe MN; and upon A, with the distance MN, describe an arch cutting the preceding one in *c*, which will determine the side *b c*. And after the same manner are the other sides and angles to be described. The same process will also serve to enlarge the figure.

3. To reduce a figure by a scale. Measure all the sides of the figure, as ABCDE (nº 2.) by a scale, and lay down the same measures respectively from a smaller scale in the proportion required.

4. To reduce a map, design, or figure, by squares. Divide the original into little squares, and divide a fresh paper of the dimensions required into the same number of squares, which are to be larger or less than the former, as the map is to be enlarged or diminished. This done in every square of the second figure, draw what you find in its correspondent one in the first.

REDUCTION, in metallurgy, is the bringing back metalline substances which have been changed into scoriæ or ashes, or otherwise divested of their metallic form, into their natural and original state of metals again. See METALLURGY, *passim*; and CHEMISTRY, nº 140. and 320.

REDUCTION, in surgery, denotes an operation whereby a dislocated, luxated, or fractured bone, is restored to its former state or place.

REDUNDANCY, a fault in discourse, consisting in the use of a superfluity of words. Words perfectly synonymous are redundant, and ought to be retrenched.

REDUNDANT, in music. What the French call *une accord superflue*, which we have translated *a redundant chord* in the article MUSIC (from D'Alembert), has by others been rendered *a chord extremely sharp*, as in the translation of Rameau's Principles of Composition. Their nature will be best understood by a few examples, and an account of the number of tones, semitones, or lesser intervals, contained in each.

The *second redundant* is composed of a major tone, and a minor semitone; as from *fa* to *sol* sharp. Its proportion is as 64 to 75.

The *third redundant* consists of two tones and a semitone, as *fa*, *la*, sharp. Its proportion is as 96 to 125.

The *fourth redundant* is the same with the tritone.

From these examples compared with the same intervals in their natural state, the reader may form a general idea of what is meant by *redundant*.

Ree || Re-Exchange.

REE, REIS, or *Res*, a little Portuguese coin. See *MONEY-Table*.

REED, in botany. See ARUNDO and BAMBOO.

There are two sorts of reeds, says Hasselquist, growing near the Nile. One of them has scarce any branches; but is furnished with numerous leaves, which are narrow, smooth, channelled on the upper surface; and the plant is about 11 feet high. The Egyptians make ropes of the leaves. They lay them in water like hemp, and then make them into good strong cables. These, with the bark of the date-tree, form almost the only cable used in the Nile. The other sort is of great consequence. It is a small reed, about two or three feet high, full branched, with short, sharp, lancet-shaped leaves. The roots, which are as thick as the stem, creep and mat themselves together to a considerable distance. This plant seems useless in common life: but to it, continues the learned author, is the very soil of Egypt owing: for the matted roots have stopped the earth which floated in the waters, and thus formed, out of the sea, a country that is habitable.

Fire-REEDS. See *FIRE-Ship*.

REED, a term in the west of England for the straw used by thatchers, which is wheat straw finely combed, consisting of stiff, unbruised, and unbroken stalks of great length, carefully separated from the straw used for fodder by the thresher, and bound in sheaves or nitches, each of which weighs 28 lb. and are sold from 21 s. to 31 s. per hundred nitches, according to the season. This is a great improvement in the art of thatching, as it gives a finish to the work which cannot be attained by straw, rough and tumbled together, without any separation of the long and short: it also is a readier mode of working.

REEF, a term in navigation. When there is a great gale of wind, they commonly roll up part of the sail below, that by this means it may become the narrower, and not draw so much wind; which contracting or taking up the sail they call a *reef*, or *reefing the sail*: so also when a *top-mast is sprung*, as they call it, that is, when it is cracked, or almost broken in the cap, they cut off the lower piece that was near broken off, and setting the other part, now much shorter, in the step again, they call it a *reefed top-mast*.

REEL, in the manufactories, a machine serving for the office of reeling. There are various kinds of reels; some very simple, others very complex.

REELING, in the manufactories, the winding of silk, cotton, or the like, into a skain, or upon a button, to prevent its entangling. It is also used for the charging or discharging of bobbins, or quills, to use them in the manufacture of different stuffs, as thread, silk, cotton, &c. Reeling is performed in different ways, and on different engines.

REEVING, in the sea-language, the putting a rope through a block: hence to pull a rope out of a block is called *unreeving*.

RE-EXCHANGE, in commerce, a second payment of the price of exchange, or rather the price of

a new exchange due upon a bill of exchange that comes to be protested, and to be refunded the bearer by the drawer or indorser.

REFECTION, among ecclesiastics, a spare meal or repast, just sufficing for the support of life: hence the hall in convents, and other communities, where the monks, nuns, &c. take their refections or meals in common, is called the *refectory*.

REFERENCE, in writing, &c. a mark relative to another similar one in the margin, or at the bottom of the page, where something omitted in the text is added, and which is to be inserted either in reading or copying.

REFINING, in general, is the art of purifying a thing; including not only the essaying or refining of metals, but likewise the depuration or clarification of liquors. See METALLURGY, Part II. CLARIFICATION; and PHARMACY.

Gold and silver may be refined by several methods, which are all founded on the essential properties of these metals, and acquire different names according to their kinds. Thus, for instance, gold having the property which no other metal, not even silver, has of resisting the action of sulphur, of antimony, of nitrous acid, of marine acid, may be purified by these agents from all other metallic substances, and consequently may be refined. These operations are distinguished by proper names, as *purification of gold by antimony*, *parting*, *concentrated parting*, *dry parting* *. In a similar manner, as silver has the property, which the imperfect metals have not, of resisting the action of nitre, it may be refined by this salt: but the term *refining* is chiefly applied to the purification of gold and silver by lead in the cupel.

This is performed by the destruction, vitrification, and scorification, of all the extraneous and destructible metallic substances with which they are all allayed.

As none but the perfect metals can resist the combined action of air and fire, without losing their inflammable principle, and being changed into earthy or vitreous matters, incapable of remaining any longer united with substances in a metallic state, there is then a possibility of purifying gold and silver from all allay of imperfect metals merely by the action of fire and air; only by keeping them fused till all the allay be destroyed: but this purification would be very expensive, from the great consumption of fuel, and would be exceedingly tedious. Silver allayed with copper has been exposed longer than 60 hours to a glass-house fire without being perfectly refined: the reason of which is, that when a small quantity only of imperfect metal remains united with gold or silver, it is covered and protected from the action of the air, which is necessary for the combustion of the imperfect metals, as of all combustible matters.

This refining of gold and silver merely by the action of fire, which was the only method anciently known, was very long, difficult, expensive, and imperfect; but a much shorter and more advantageous method has been discovered. This method consists in adding to the allayed gold and silver a certain quantity of lead, and in exposing afterwards this mixture to the action of the fire. Lead is one of the metals which loses most quickly and easily a sufficient quantity of its inflammable principle to cease to be in a metallic state; but, at the same time, this metal has the remarkable property of retaining, notwithstanding the action of the fire, enough of this same inflammable principle to be very easily melted into a vitrified and powerfully vitrifying matter, called *litharge*.

The lead then which is to be added to the gold and silver to be refined, or which happens naturally to be mixed with these metals, produces in their refining the following advantages: 1. By increasing the proportion of imperfect metals, it prevents them from being so well covered and protected by the perfect metals.—2. By uniting with these imperfect metals, it communicates to them a property it has of losing very easily a great part of its inflammable principle. 3. By its vitrifying and fusing property which it exercises with all its force upon the calcined and naturally refractory parts of the other metals, it facilitates and accelerates the fusion, the scorification, and the separation of these metals. These are the advantages procured by lead in the refining of gold and silver.

The lead, which in this operation is scorified, and scorifies along with it the imperfect metals, separates from the metallic mass, with which it is then incapable of remaining united. It floats upon the surface of the melted mass; because, by losing part of its phlogiston, it loses also part of its specific gravity, and lastly it vitrifies.

These vitrified and melted matters accumulating more and more upon the surface of the metal while the operation advances, would protect this surface from the contact of air which is so absolutely necessary for the scorification of the rest, and would thus stop the progress of the operation, which could never be finished, if a method had not been contrived for their removal. This removal of the vitrified matter is procured either by the nature of the vessel in which the melted matter is contained, and which being porous, absorbs and imbibes the scorified matter as fast as it is formed, or by a channel cut in the edge of the vessel through which the matter flows out.

The vessel in which the refining is performed is flat and shallow, that the matter which it contains may present to the air the greatest surface possible. This form resembles that of a cup, and hence it has been called *cupel*. The furnace ought to be vaulted, that the heat may be applied upon the surface of the metal during the whole time of the operation. Upon this surface a crust of dark-coloured pellicle is continually forming. In the instant when all the imperfect metal is destroyed, and consequently the scorification ceases, the surface of the perfect metals is seen, and appears clean and brilliant. This forms a kind of fulguration or coruscation. By this mark the metal is known to be refined. If the operation be so conducted that the metal sustains only the precise degree of heat necessary to keep it fused before it be perfectly refined, we may observe that it fixes or becomes solid all at once in the very instant of the coruscation; because a greater heat is required to keep silver or gold in fusion when they are pure than when allayed with lead.

The operation of refining may be performed in small or in large quantities, upon the same principles, but only with some differences in the management. As the refining of small quantities of perfect metals is performed in the same manner as these metals are essayed, the

allay

essay being only a very accurate refining, we refer to the article *Lower of the Value of Silver*.

Large quantities of silver are thus purified, after the operations by which that metal is obtained from its ore. This silver, being always much allayed, is to be mixed with a sufficient quantity of lead to complete its purification, unless lead has been added in its first fusion from the ore, or unless it has been extracted from an ore which also contains lead; in which latter case, it is allayed naturally with a sufficient quantity, or more than sufficient, for the refining of it.

REFLECTION, the return or progressive motion of a moving body, occasioned by some obstacle which hindered it from pursuing its former direction.

Circular Instrument of Reflection, an instrument for measuring angles to a very great degree of accuracy. It was invented by the celebrated astronomer Mr Tobias Mayer of Gottingen, principally with a view to do away the errors of the divisions of the limb; and has since been much improved by the Chevalier de Borda, and M. J. H. de Magellan. This instrument is particularly applicable to the measuring of the distances of the heavenly bodies, and was used by the French in their part of the operation for determining the difference of meridians of Paris and Greenwich. For the description, rectification, and use of this instrument, see the article NAVIGATION, and *Mackay on the Longitude*, vol. i. p. 44.

Reflection of the Rays of Light, in catoptrics, is their return, after approaching so near the surface of bodies as to be thereby repelled or driven backwards. For the causes of reflection, see OPTICS, *Index* at *Rays of Light*, and *Reflection of Light*, &c. For the application of the doctrine of reflection to mirrors, see OPTICS, p. 347—349. See also MIRROR, *BURNING-Glass*, and *Glass-GRINDING*; and for the *coating* or *foliating* of mirrors, see the article *FOLIATING of Looking-glasses*, &c. See also TELESCOPE.

REFLECTION is also used, figuratively, for an operation of the mind, whereby it turns its view backwards as it were upon itself, and makes itself and its own operations the object of its disquisition; and by contemplating the manner, order, and laws, which it observes in perceiving ideas, comparing them together, reasoning, &c. it frames new ideas of the relations discovered therein. See METAPHYSICS.

REFLEX, in painting, means those places in a picture which are supposed to be illuminated by light reflected from some other body in the same piece. See PAINTING, Part I. sect. 2. and 5.

REFLUX, the backward course of water, has the same meaning as the ebbing of the sea, and is opposed to flood, flux, or the flowing of the sea. See TIDES.

REFORM means a change from worse to better, a re-establishment or revival of former neglected discipline, or a correction of abuses therein. The term is much used in a monastic sense for the reducing an order or congregation of religious to the ancient severity of the rule from which it had gradually swerved, or even for improving on the ancient rule and institution itself, and voluntarily making it more severe. In this sense the order of St Bernard is said to be only a reform of that of St Benedict. In this country it is applied both to politics and religion, and may innocently be applied to all endeavours to change an establishment from worse to better. But it appears at present to have been chiefly made a pretence for designs which could not fairly or safely be avowed.

A reform in religion and in parliament (see PARLIAMENT) has, we know, been most loudly called for by men whose religious notions are immensely different from what has been generally reckoned Christianity, and whose designs, as has been legally proved, went to the overthrow of all civil order. For insidious purposes like these, the word reform is a good cloak, especially if any thing can be fixed upon, either in the religion or government of the state, which, with the help of exaggeration and distortion, can be represented to the weak and unthinking as extremely defective and erroneous.

The general error of these men seems to be, that having picked up a set of speculative notions which flatter their own pride and the pride of those who listen to them, they will allow nothing to the arguments of their opponents or the experience of mankind. They think so often and so much upon their ideal reforms, that while they imagine their notions are liberal and extensive, they become contracted beyond imagination; while their judgments, of course, are warped with the most inveterate prejudices (see PREJUDICE.) They see, or think they see, the propriety of their schemes; but they seldom, perhaps never, reflect, that that may be true in speculation or in theory which cannot possibly be reduced to practice. They will not take the world as it is, and allow it to profit by the wisdom and experience of ages; but they will reform it according to those ideas of right which they have learned from their own speculations and airy theories; seldom considering what may be done, they are determined to do what they think ought to be done. Liberty of conscience, and liberty of action, have been claimed by them as the unalienable rights of man; and so we ourselves are disposed to think them: nor have we heard that in this country they have been denied to any man, or set of men, so far as has been thought consistent with the safety of the state, and that of the other individuals who compose it. At the same time, the very same men hesitate not to blame, with acrimony the most violent, and to the utmost of their power to restrain, the actions and opinions of those who with equal conviction, often on better grounds, and generally with more modesty, differ from them.

Amidst that excessive ardour, too, with which they propagate their opinions, they forget the extreme danger of withdrawing the attention of that part of the community, who must earn their bread by the sweat of their brow, from their proper occupations, to the tempestuous sea of political debate, for which their education and mode of life cannot possibly have qualified them. It requires but very little penetration, however, to be able to see, that it can be of no real service either to the individuals themselves, or to the community at large, in whatever light we look upon it. Indeed, to make those the judges of the law, and the reformers of the legislature, who have all their lives been employed in manual labour, is the extreme of folly; and yet it is what some men of considerable abilities, and from whom we had reason to expect better things, have more than once attempted. The effect of such a mode of seduction (and it deserves no better name), when it shall become general, instead of serving the purposes of a real reform, must be to annihilate all civil order. Dissatisfaction

tisfaction is the most powerful check to honest industry; and dissatisfaction and idleness must be the effect of the wanderings of such men in the labyrinths of politics; which, for uncultivated minds especially, paves the way for every species of vice, and gradually ripens them for any wickedness, however atrocious. For the truth of these remarks, we appeal to the history of mankind from the Creation to the present time: and we would seriously request the *sober friends of reform*, and many such, we doubt not, there are, to reflect, that in the present day we have more to fear from licentiousness than from despotism; from reform carried to an extreme than from the pretended attempts either of kings or ministers to annihilate our real liberty (see REVOLUTION).

It may also be worth their while to consider, that times of public danger are not generally the best adapted to attempt changes of government; because what might satisfy one party would probably be thought too little by another, and divisions at such a period are most dangerous. When, therefore, attempts are made for reform which appear to be inconsistent with the safety of the state, restrictions must be used, which may by speculative men be thought severe and unnecessary, but of which they themselves are the causes. These restrictions too will be patiently submitted to by the wiser part of the community, when in more peaceable times they would neither have been thought of nor allowed.

Speculative reasoners may speak as much as they will of enlightening the minds of men, and of reforming government by the dictates of a refined and dispassionate philosophy; but when they come to apply their notions to practice, they will either find their representations little better than empty sounds, and therefore ineffectual; or, as is more generally found to be the case, those schemes which in theory appeared to be perfect, will in practice, when combined with the malignant and ambitious passions of men, lead to ruin and disorder. The first institution of government, except among the Jews, was unquestionably the effect of passion and interest combined; and this passion and this interest, restrained within due bounds, is productive of much happiness. That government, we believe, too, will be best supported, and most productive of happiness, in which the mutual passions and interests of the individuals who compose it are so equally poised as to support one another, and to promote each the ends and success of the other: and this by the ablest reasoners and the best men has been thought to be the case with the British constitution. If the modern favourers of reform should think this an unstable support, if they will consider the world as it ever has been, and as it is, they will find it the only one we have, except religion; and they will thence be inclined to make the best of it. If, after all, however, they should be disposed to doubt the position, we have only further to request them, with the sincerity of men and of Christians, to consult their own breasts, and seriously to consider the probable motives of those who act with them. They will then perhaps see, and they surely ought to acknowledge, that few men have acted more according to the impulse of passion, interest, and ambition, than those who have for some time past sounded the toczin of reform.

REFORMATION, in general, an act of reforming or correcting an error or abuse in religion, discipline, or the like. By way of eminence the word is used for that great alteration and reformation in the corrupted system of Christianity, begun by Luther in the year 1517. Reformation.

Under the article HISTORY (sect. ii.), the various corruptions in religion, the oppressions and usurpations of the clergy, and the extreme insolence of the popes, have been so fully treated of, that any further detail here is unnecessary. It is sufficient to observe, that, before the period of the Reformation, the Pope had in the most audacious manner declared himself the sovereign of the whole world. All the parts of it which were inhabited by those who were not Christians, he accounted to be inhabited by *no-body*; and if Christians took it into their heads to possess any of those countries, he gave them full liberty to make war upon the inhabitants without any provocation, and to treat them with no more humanity than they would have treated wild beasts. The countries, if conquered, were to be parcelled out according to the pope's pleasure; and dreadful was the situation of that prince who refused to obey the will of the holy pontiff, of which many instances will occur to the reader in the various historical articles of this work. In consequence of this extraordinary authority which the pope had assumed, he at last granted to the king of Portugal all the countries to the eastward of Cape Non in Africa, and to the king of Spain all the countries to the westward of it. In this, according to the opinions of some, was completed in his person the character of *Antichrist sitting in the temple of God, and shewing himself as God* [2]. He had long before, say they, assumed the supremacy belonging to the Deity himself in spiritual matters; and now he assumed the same supremacy in worldly matters also, giving the extreme regions of the earth to whom he pleased. The Reformation, therefore, they consider as the immediate effect of divine power taking vengeance on this and all other deviations from the system of truth; while others consider it merely as an effect of natural causes, and which might have been foreseen and prevented, without abridging the papal power in any considerable degree.

1 The pope assumes the disposal of the whole world.

[2] Thess. ii. 4.

Be this as it will, however, the above-mentioned partition was the last piece of insolence which the pope ever had, or in all probability ever will have, in his power to exercise, in the way of parcelling out the globe to his adherents. Every thing was quiet, every heretic exterminated, and the whole Christian world supinely acquiesced in the enormous absurdities which were inculcated upon them; when, in 1517, the empire of superstition began to decline, and has continued to do so ever since. The person who made the first attack on the [illegible] opinions then prevailing was Martin Luther; the occasion of which is fully related under the article LUTHER. By some it is pretended, that the chief motive which Luther had in his [illegible] reformation was his enmity to the Dominican friars, who had excluded him by order of the Augustines from all share in the grand traffic of indulgences. But this does not seem at all probable, if we consider that such a motive would not naturally have led him to deny the virtue of indulgences, as such conduct could not but exclude him for ever from any chance of a share in the traffic, which otherwise perhaps he might have obtained. Besides, the extreme contrariety of this traffic to the common principles of reason and honesty was so great, that we

2 Supposed by some to have been Luther's motive.

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cannot wonder at finding one man in the world who had life enough to discern it, and virtue enough to oppose such an infamous practice. In all probability, however, the insignificancy of the first reformer was the reason why he was not persecuted and exterminated at his first beginning, as others had been before him. Another reason probably might be, that he did not at once attack the whole errors of Popery, but brought about his reformation gradually, probably as it occurred to himself, and as we have related in the account of his life.

In Switzerland by Zuinglius.

The Reformation began in the city of Wittemberg in Saxony, but was not long confined either to that city or province. In 1520 the Franciscan friars, who had the care of promulgating indulgences in Switzerland, were opposed by Zuinglius, a man not inferior in understanding and knowledge to Luther himself. He proceeded with the greatest vigour, even at the very beginning, to overturn the whole fabric of Popery; but his opinions were declared erroneous by the universities of Cologne and Louvain. Notwithstanding this, the magistrates of Zurich approved of his proceedings; and that whole canton, together with those of Bern, Basil, and Chaffausen, embraced his opinions.

In Germany, Luther continued to make great advances, without being in the least intimidated by the ecclesiastical censures which were thundered against him from all quarters, he being continually protected by the German princes either from religious or political motives, so that his adversaries could not accomplish his destruction as they had done that of others. The princes, who were upon bad terms with the court of Rome, took advantage of the success of the new doctrines; and in their own dominions easily overturned a church which had lost all the respect and veneration of the inferior ranks. The court of Rome had disobliged some of the smaller princes in the north of Germany, whom the Pope probably thought too insignificant to be worth the managing, and they universally established the Reformation in their own dominions. Melancthon, Carlostadius, and other men of eminence, also greatly forwarded the work of Luther; and in all probability the Popish hierarchy would have soon come to an end, in the northern parts of Europe at least, had not the emperor Charles V. given a severe check to the progress of reformation in Germany. In order to follow out the schemes dictated by his ambition, he thought it necessary to ingratiate himself with the pope; and the most effectual method of doing this was by destroying Luther. The Pope's legates insisted that Luther ought to be condemned by the diet of Worms without either trial or hearing; as being a most notorious, avowed, and incorrigible heretic. However, this appeared unjust to the members of the diet, and he was summoned to appear; which he accordingly did without hesitation *. There is not the least doubt that his appearance there had been his last in this world, had not the astonishing respect that was paid him, and the crowds who came daily to see him, deterred his judges from delivering the church from the author of such a pestilent heresy; which they were strongly solicited by the pope's party to do. He was therefore permitted to depart with a safe conduct for a certain time; after which he was in the state of a proscribed criminal, to whom it was unlawful to perform any of the offices of humanity.

4 Opposed in Germany by Char. V.

* See Luther.

During the confinement of Luther in a castle near Warburg, the Reformation advanced rapidly; almost every city in Saxony embracing the Lutheran opinions. At this time an alteration in the established forms of worship was first ventured upon at Wittemberg, by abolishing the celebration of private masses, and by giving the cup as well as the bread to the laity in the Lord's supper. In a short time, however, the new opinions were condemned by the university of Paris, and a refutation of them was attempted by Henry VIII. of England. But Luther was not to be thus intimidated. He published his animadversions on both with as much acrimony as if he had been refuting the meanest adversary; and a controversy managed by such illustrious antagonists drew a general attention, and the Reformers daily gained new converts both in France and England.

5 Form of worship altered at Wittemberg.

But while the efforts of Luther were thus everywhere crowned with success, the divisions began to prevail among the Reformers which have since so much agitated the reformed churches. The first dispute was between Luther and Zuinglius concerning the manner in which the body and blood of Christ were present in the eucharist. Luther and his followers, though they had rejected the notion of transubstantiation, were nevertheless of opinion that the body and blood of Christ were really present in the Lord's supper, in a way which they could not pretend to explain. Carlostadt, who was Luther's colleague, first suggested another view of the subject, which was afterwards confirmed and illustrated by Zuinglius, namely, that the body and blood of Christ were not really present in the eucharist; and that the bread and wine were no more than external symbols to excite the remembrance of Christ's sufferings in the minds of those who received it. Both parties maintained their tenets with the utmost obstinacy; and, by their divisions, first gave their adversaries an argument against them, which to this day the Catholics urge with great force; namely, that the Protestants are so divided, that it is impossible to know who is right or wrong; and that there cannot be a stronger proof than these divisions, that the whole doctrine is false.

6 Disputes among the Reformers.

To these intestine divisions were added the horrors of a civil war, occasioned by oppression on the one hand, and enthusiasm on the other. In 1525, a great number of seditious fanatics arose on a sudden in different parts of Germany, took arms, united their forces, and made war against the empire, laying waste the country with fire and sword, and committing everywhere the greatest cruelties. The greatest part of this furious mob was composed of peasants and vassals, who groaned under heavy burdens, and declared that they were no longer able to bear the despotic government of their chiefs; and hence this sedition had the name of *the rustic war*, or the *war of the peasants*. At first this rabble declared, that they had no other motives than the redress of their grievances; but no sooner had the enthusiast Munzer, or Munster, the anabaptist, put himself at their head, than the face of things was entirely changed, and the civil commotions in Saxony and Thuringia exceedingly increased, of which an account is given under the article ANABAPTISTS.

7 Disturbances in Germany.

In the mean time Frederic, surnamed the *Wise*, elector of Saxony, and Luther's great patron, departed this life, and was succeeded by his brother John. Frederic, though he had protected and encouraged Luther, yet was at no pains to introduce the reformed religion into his

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his dominions. But with his successor it was otherwise; for he, convinced that Luther's doctrine must soon be totally destroyed and suppressed unless it received a speedy and effectual support, ordered Luther and Melancthon to draw up a body of laws relating to the form of ecclesiastical government, the method of public worship, &c. which was to be proclaimed by heralds throughout his dominions. This example was followed by all the princes and states of Germany who renounced the papal supremacy; and a like form of worship, discipline, and government, was thus introduced into all the churches which dissented from that of Rome. This open renunciation of the Romish jurisdiction soon changed the face of affairs; and the patrons of Popery soon intimated, in a manner not at all ambiguous, that they intended to make war on the Lutheran party; which would certainly have been put in execution, had not the troubles that took place in Europe disconcerted their measures. On the other hand, the Lutherans, apprized of these hostile intentions, began also to deliberate on a proper plan of defence against that superstitious violence with which they were in danger of being assailed. The diet of the empire assembled at Spire, in the year 1526; where the emperor's ambassadors were desired to use their utmost endeavours to suppress all disputes about religion, and to insist upon the rigorous execution of the sentence which had been pronounced against Luther and his followers at Worms. The greatest part of the German princes opposed this motion with the utmost resolution, declaring that they could not execute that sentence, nor come to any determination with regard to the doctrines by which it had been occasioned, before the whole matter was submitted to the decision of a council lawfully assembled; alleging farther, that the decision of controversies of this nature belonged properly to it, and to it alone. This opinion, after long and very warm debates, was adopted by a great majority, and at length consented to by the whole assembly: for it was unanimously agreed to present a solemn address to the emperor, intreating him to assemble, without delay, a free and general council; while in the mean time it was also agreed, that the princes of the empire should, in their respective dominions, be at liberty to manage ecclesiastical affairs in the manner they should think most proper; yet so as to be able to give to God and the emperor a proper account of their administration when it should be required of them.

8 Reformation established in Saxony.

9 Resolutions of the diet of Spire favourable to the Reformation.

These resolutions proved extremely favourable to the cause of reformation; neither had the emperor any leisure for some time to give disturbance to the reformed. The war, which at this time ensued between him and the pope, gave the greatest advantage to the friends of the reformed, and considerably augmented their number. Several princes, whom the fear of persecution and punishment had hitherto prevented from lending their assistance, publicly renounced the Romish superstition, and introduced among their subjects the same forms of religious worship, and the same system of doctrine, that had been received in Saxony. Others, though placed in such circumstances as discouraged them from acting in an open manner against the interests of the Roman pontiff, were, however, far from discovering the smallest opposition to those who withdrew the people from his despotic yoke; nor did they molest the private assemblies of those who had separated themselves from the church of Rome. And in general, all the Germans who, before these resolutions of the diet of Spire, had rejected the papal discipline and doctrine, were now, in consequence of the liberty they enjoyed, wholly employed in bringing their schemes and plans to a certain degree of consistence, and in adding vigour and firmness to the cause in which they were engaged. But this tranquillity and liberty was of no long duration. In 1529, a new diet was assembled at the same place by the emperor, after he had quieted the troubles in various parts of his dominions, and concluded a peace with the pope. The power which had been granted to princes of managing ecclesiastical affairs till the meeting of a general council, was now revoked by a majority of votes; and every change declared unlawful that should be introduced into the doctrine, discipline, or worship of the established religion, before the determination of the approaching council was known. This decree was considered as iniquitous and intolerable by the elector of Saxony, the landgrave of Hesse, and other members of the diet, who were persuaded of the necessity of a reformation. The promise of speedily assembling a general council, they looked upon to be an artifice of the church of Rome; well knowing, that a free and lawful council would be the last thing to which the pope would consent. When, therefore, they found that all their arguments and remonstrances made no impression upon Ferdinand the emperor's brother, who presided in the diet, Charles himself being then at Barcelona, they entered a solemn protest against this decree on the 19th of April, and appealed to the emperor and a future council. Hence arose the denomination of *Protestants*, which from this period has been given to those who separate from the communion of the church of Rome. The princes of the empire who entered this protest were, John elector of Saxony; George elector of Brandenburg; Ernest and Francis dukes of Lunenburgh; the landgrave of Hesse; and the prince of Anhalt. These were seconded by 13 imperial towns, viz. Strasburg, Ulm, Nuremberg, Constance, Rottingen, Windsheim, Memmingen, Nortlingen, Lindaw, Kempton, Heilbron, Wissemburg, and St Gall.

10 Revoked by the emperor.

11 Origin of the name *Protestants*.

The dissenting princes, who were the protectors and heads of the reformed churches, had no sooner entered their protest, than they sent proper persons to the emperor, who was then upon his passage from Spain to Italy, to acquaint him with their proceedings in this matter. The ministers employed in this commission executed it with the greatest intrepidity and presence of mind; but the emperor, exasperated at the audacity of those who presumed to differ from him, caused the ambassadors to be arrested. The news of this violent step made the Protestant princes conclude, that their personal safety, and the success of their cause, depended entirely upon their own courage and union. They determined, therefore, to enter into a solemn confederacy: for which purpose they held several meetings at Rot, Nuremberg, Smalcald, and other places: but so different were their opinions and views, that they could determine upon nothing.

12 Conference between Luther and Zuinglius.

One great obstacle to the intended confederacy was the dispute which had arisen between Luther and Zuinglius concerning the real presence of Christ in the Lord's Supper. To terminate this dispute, if possible, Philip, landgrave of Hesse, invited, in the year 1529, to

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a conference at Marpurg, Luther and Zuinglius, together with several other of the more eminent doctors who adhered to the respective parties of these contending chiefs: but this measure was not attended with the salutary effects which were expected from it. The divines disputed for four days in presence of the landgrave. Luther attacked Oecolampadius, and Zuinglius was attacked by Melancthon. Zuinglius was accused of heresy, not only on account of his explanation of the nature and design of the Lord's Supper, but also in consequence of the false notions he was supposed to have adopted concerning the divinity of Christ, the efficacy of the divine word, original sin, and some other parts of the Christian doctrine. This illustrious reformer, however, cleared himself from the greatest part of these charges with the most triumphant evidence, and in such a manner as appeared satisfactory even to Luther himself: but their dissension concerning the manner of Christ's presence in the eucharist still remained; nor could either of the contending parties be persuaded to abandon, or even to modify, their opinions on that matter. The only advantage, therefore, which resulted from the meeting was, that the jarring doctors formed a kind of truce, by agreeing to a mutual toleration of their sentiments, and leaving to the disposal of Providence the cure of their divisions.

In the mean time news were received that the emperor designed to come into Germany, with a view to terminate all religious differences at the approaching diet of Augsburg. Having foreseen some of the consequences of those disputes, and, besides, taken the advice of men of wisdom, sagacity, and experience, he became at certain times more cool in his proceedings, and more impartial in his opinions both of the contending parties and the merits of the cause. He, therefore, in an interview with the pope at Bologna, insisted, in the most serious and urgent manner, on the necessity of a general council. His remonstrances and expostulations, however, could not move the pontiff; who maintained with zeal the papal prerogatives, reproached the emperor with an ill-judged clemency, and alleged that it was the duty of that prince to support the church, and to execute speedy vengeance upon that obstinate heretical faction who dared to call in question the authority of Rome and its pontiff. To this discourse the emperor paid no regard; looking upon it as a most iniquitous thing, and a measure directly opposite to the laws of the empire, to condemn unheard a set of men who had always approved themselves good citizens, and deserved well of their country in several respects. Hitherto indeed it was not easy for the emperor to form a clear idea of the matters in debate, since there was no regular system as yet composed, by which it might be known with certainty what were the true causes of Luther's opposition to the pope. The elector of Saxony, therefore, ordered Luther, and other eminent divines, to commit to writing the chief articles of their religious system, and the principal points in which they differed from the church of Rome. Luther, in compliance with this order, delivered to the elector at Torgaw 17 articles which had been agreed upon in a conference at Sultzbach in 1529; from whence these received the name of *the articles of Torgaw*. But though these were deemed by Luther a sufficient declaration of the sentiments of the reformers, yet it was judged proper to enlarge them, in order to give perspicuity to their arguments, and strength to their cause. In this work Melancthon was employed; in which he showed a proper deference to the counsels of Luther, and expressed his sentiments and doctrine with the greatest elegance and perspicuity; and thus came forth to view the famous *Confession of Augsburg*.

73 Origin of the confession of Augsburg.

On the 15th of June 1530, Charles arrived at Augsburg, and the diet was opened five days after. The Protestants received a formal permission to present an account of their tenets to the diet on the 25th of the same month; in consequence of which, at the time appointed, Christian Bayer, chancellor of Saxony, read, in the German language, before the emperor and the princes assembled, the confession of Augsburg abovementioned. It contained 28 chapters, of which 21 were employed in representing the religious opinions of the Protestants, and the other seven in pointing out the errors and superstitions of the church of Rome. The princes heard it with the deepest attention and recollection of mind: it confirmed some in the principles they had embraced; surprised others; and many, who before this time had little or no idea of the religious sentiments of Luther, were now not only convinced of their innocence, but delighted with their purity and simplicity. The copies of this Confession, which after being read were delivered to the emperor, were signed by John elector of Saxony, George marquis of Brandenburg, Ernest duke of Lunenburg, Philip landgrave of Hesse, Wolfgang prince of Anhalt, and by the imperial cities of Nuremberg and Reutlingen.

74 It is presented to the emperor.

The creatures of the church of Rome who were present at this diet employed John Faber, afterwards bishop of Vienna, together with Eckius, and another doctor named *Cocklæus*, to draw up a refutation of the Protestant confession: which refutation having been publicly read, the emperor required the Protestant members to acquiesce in it, and put an end to the religious disputes by an unlimited submission to the opinions and doctrines contained in this answer. But this demand was far from being complied with. The Protestants declared on the contrary, that they were by no means satisfied with the reply of their adversaries; and earnestly desired a copy of it, that they might more fully demonstrate its extreme insufficiency and weakness. But this reasonable request was refused by the emperor; who interposed his supreme authority to prevent any farther proceedings in this matter, and solemnly prohibited the publication of any new writings or declarations that might contribute to lengthen out these religious debates. This, however, did not reduce the Protestants to silence. The divines of that communion, who had been present at the diet, endeavoured to recollect the arguments and objections employed by Faber, and had again recourse to the pen of Melancthon, who refuted them in an ample and satisfactory manner in a piece which was presented to the emperor on the 22d of September, but which Charles refused to receive. This answer was afterwards enlarged by Melancthon, when he had obtained a copy of Faber's reply; and was published in the year 1531, with the other pieces that related to the doctrine and discipline of the Lutheran church, under the title of *A Defence of the Confession of Augsburg*.

75 A refutation of it, in which the Protestants are ordered to acquiesce.

Matters now began to draw towards a crisis. There were only three ways of bringing to a conclusion these religious

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religious differences. 1. To grant the Proteſtants a toleration and privilege of ſerving God as they thought proper: 2. To compel them to return to the church of Rome by the violent methods of perſecution: or, 3. That a reconciliation ſhould be made, upon fair, candid, and equitable terms, by engaging each of the parties to temper their zeal with moderation, to abate reciprocally the rigour of their pretenſions, and remit ſomething of their reſpective claims. The third expedient was moſt generally approved of, being peculiarly agreeable to all who had at heart the welfare of the empire; nor did the pope ſeem to look upon it either with averſion or contempt. Various conferences therefore were held between perſons eminent for piety and learning on both ſides; and nothing was omitted that might have the leaſt tendency to calm the animoſities and heal the diviſions which reigned between the contending parties. But the differences were too great to admit of a reconciliation; and therefore the votaries of Rome had recourſe to the powerful arguments of imperial edicts, and the force of the ſecular arm. On the 19th of November, a ſevere decree was iſſued out by the expreſs order of the emperor (during the abſence of the Heſſian and Saxon princes, who were the chief ſupporters of the Proteſtant cauſe), in which every thing was manifeſtly adapted to deject the friends of religious liberty, excepting only a faint and dubious promiſe of engaging the pope to aſſemble a general council about ſix months after the ſeparation of the diet. In this decree the dignity and excellence of the Popiſh religion were extolled beyond meaſure, a new degree of ſeverity and force was added to that which had been publiſhed at Worms againſt Luther and his adherents, the changes which had been introduced into the doctrine and diſcipline of the Proteſtant churches were ſeverely cenſured, and a ſolemn order was addreſſed to the princes, cities, and ſtates, who had thrown off the Papal yoke, to return to their allegiance to Rome, on pain of incurring the indignation and vengeance of the emperor as the patron and protector of the church. Of this formidable decree the elector of Saxony and confederated princes were no ſooner informed, than they aſſembled in order to deliberate on the meaſures proper to be taken in ſuch a criſis. In the years 1530 and 1531 they met, firſt at Smalcald, and afterwards at Francfort, where they formed a ſolemn alliance and confederacy, with the intention of defending vigorouſly their religion and liberties againſt the dangers and encroachments with which they were threatened by the edict of Augſburg, without attempting, however, any thing offenſive againſt the votaries of Rome; and into this confederacy they invited the kings of England, France, Denmark, &c. leaving no means unemployed that might corroborate and cement this important alliance.

16 Severe decree against the Proteſtants.

17 The league of Smalcald.

This confederacy was at firſt oppoſed by Luther, from an apprehenſion of the calamities and troubles which it might produce; but at laſt, perceiving the neceſſity of it, he conſented; though he uncharitably, as well as imprudently, refuſed to comprehend in it the followers of Zuinglius among the Swiſs, together with the German ſtates and cities who had adopted the ſentiments and confeſſion of Bucer. In the invitation addreſſed to Henry VIII. of England, whom the confederate princes were willing to declare the head and protector of their league, the following things, among others, were expreſsly ſtipulated: That the king ſhould encourage, promote, and maintain, the true doctrine of Chriſt as it was contained in the confeſſion of Augſburg, and defend the ſame at the next general council: that he ſhould not agree to any council ſummoned by the biſhop of Rome, but proteſt againſt it; and neither ſubmit to its decrees, nor ſuffer them to be reſpected in his dominions: that he ſhould never allow the Roman pontiff to have any pre-eminence or juriſdiction in his dominions; that he ſhould advance 100,000 crowns for the uſe of the confederacy, and double that ſum if it became neceſſary: all which articles the confederate princes were equally obliged to obſerve on their part. To theſe demands the king replied, that he would maintain and promote the true doctrine of Chriſt; but, at the ſame time, as the true ground of that doctrine lay only in the holy Scriptures, he would not accept at any one's hand what ſhould be his own faith, or that of his kingdom; and therefore deſired that they would ſend over two learned men to confer with him, in order to promote a religious union between him and the confederates. However, he declared himſelf of their opinion with regard to the meeting of a free general council, and promiſed to join with them in all ſuch councils for the defence of the true doctrine; but thought the regulation of the ceremonial part of religion, being a matter of indifference, ought to be left to the choice of each ſovereign for his own dominions. After this the king gave them a ſecond anſwer more full and ſatisfactory; but after the execution of queen Anne, this negociation came to nothing. On the one hand, the king grew cold when he perceived that the confederates were no longer of uſe to him in ſupporting the validity of his marriage; and, on the other hand, the German princes became ſenſible that they could never ſucceed with Henry unleſs they allowed him an abſolute dictatorſhip in matters of religion.

18 Invitation to Henry VIII. of England.

While every thing thus tended to an open war between the two oppoſite parties, the elector Palatine, and the elector of Mentz, offered their mediation, and endeavoured to procure a reconciliation. The emperor himſelf, for various reaſons, was at this time inclined to peace: for, on the one hand, he ſtood in need of ſuccours againſt the Turks, which the Proteſtant princes refuſed to grant as long as the edicts of Worms and Augſburg remained in force; and, on the other, the election of his brother Ferdinand to the dignity of king of the Romans, which had been carried by a majority of votes at the diet of Cologne in 1531, was by the ſame princes conteſted, as being contrary to the fundamental laws of the empire. In conſequence of all this, after many negociations and projects of reconciliation, a treaty of peace was concluded at Nuremberg in 1532, between the emperor and the Proteſtant princes, on the following conditions; *viz.* That the latter ſhould furniſh a ſubſidy for carrying on the war againſt the Turks, and acknowledge Ferdinand lawful king of the Romans; and that the emperor on his part ſhould abrogate and annul the edicts of Worms and Augſburg, and allow the Lutherans the free and undiſturbed exerciſe of their religious doctrine and diſcipline, until a rule of faith was fixed either in the free general council that was to be aſſembled in the ſpace of ſix months, or in a diet of the empire.

19 Peace of Nuremberg concluded.

Soon after the concluſion of the peace at Nuremberg

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died John elector of Saxony, who was succeeded by his son John Frederic, a prince of invincible fortitude and magnanimity, but whose reign was little better than one continued train of disappointments and calamities. The religious trace, however, gave new vigour to the reformation. Those who had hitherto been only secret enemies to the Roman pontiff, now publicly threw off his yoke; and various cities and provinces of Germany enlisted themselves under the religious standards of Luther. On the other hand, as the emperor had now no other hope of terminating the religious disputes but by the meeting of a general council, he repeated his requests to the pope for that purpose. The pontiff (Clement VII.), whom the history of past councils filled with the greatest uneasiness, endeavoured to retard what he could not with decency refuse. At last, in 1533, he made a proposal by his legate to assemble a council at Mantua, Piacenza, or Bologna; but the Protestants refused their consent to the nomination of an Italian council, and insisted that a controversy which had its rise in the heart of Germany, should be determined within the limits of the empire. The pope, by his usual artifices, eluded the performance of his own promise; and, in 1534, was cut off by death, in the midst of his stratagems. His successor Paul III. seemed to show less reluctance to the assembling a general council, and in the year 1535 expressed his inclination to convoke one at Mantua; and, the year following, actually sent circular letters for that purpose through all the states and kingdoms under his jurisdiction. This council was summoned by a bull issued out on the 2d of June 1536, to meet at Mantua the following year: but several obstacles prevented its meeting; one of the most material of which was, that Frederic duke of Mantua had no inclination to receive at once so many guests, some of them very turbulent, into the place of his residence. On the other hand, the Protestants were firmly persuaded that, as the council was assembled in Italy, and by the authority of the pope alone, the latter must have had an undue influence in that assembly; of consequence, that all things must have been carried by the votaries of Rome. For this reason they assembled at Smalcald in the year 1537, where they solemnly protested against this partial and corrupt council, and, at the same time, had a new summary of their doctrine drawn up by Luther, in order to present it to the assembled bishops if it should be required of them. This summary, which had the title of *The Articles of Smalcald*, is commonly joined with the creeds and confessions of the Lutheran church.

20 A general council proposed.

21 Protestation against it.

22 Fruitless schemes of accommodation.

After the meeting of the general council in Mantua was thus prevented, many schemes of accommodation were proposed both by the emperor and the Protestants; but, by the artifices of the church of Rome, all of them came to nothing. In 1541, the emperor appointed a conference at Worms on the subject of religion, between persons of piety and learning chosen from the contending parties. This conference, however, was, for certain reasons, removed to the diet which was to be held at Ratisbon that same year, and in which the principal subject of deliberation was a memorial presented by a person unknown, containing a project of peace. But the conference produced no other effect than a mutual agreement of the contending parties to refer their matters to a general council, or, if the meeting of such a council should be prevented, to the next German diet.

This resolution was rendered ineffectual by a variety of incidents, which widened the breach, and put off to a farther day the deliberations which were designed to heal it. The pope ordered his legate to declare to the diet of Spire, assembled in 1542, that he would, according to the promise he had already made, assemble a general council, and that Trent should be the place of its meeting, if the diet had no objection to that city. Ferdinand, and the princes who adhered to the cause of the pope, gave their consent to this proposal; but it was vehemently objected to by the Protestants, both because the council was summoned by the authority of the pope only, and also because the place was within the jurisdiction of the Pope; whereas they desired a free council, which should not be biassed by the dictates, nor awed by the proximity, of the pontiff. But this protestation produced no effect. Paul III. persisted in his purpose, and issued out his circular letters for the convocation of the council, with the approbation of the emperor. In justice to this pontiff, however, it must be observed, that he showed himself not to be averse to every reformation. He appointed four cardinals, and three other persons eminent for their learning, to draw up a plan for the reformation of the church in general, and of the church of Rome in particular. The reformation proposed in this plan was indeed extremely superficial and partial, yet it contained some particulars which could scarcely have been expected from those who composed it. They complained of the pride and ignorance of the bishops, and proposed that none should receive orders but learned and pious men; and that therefore care should be taken to have proper masters for the instruction of youth. They condemned translations from one benefice to another, grants of reservation, non-residence, and pluralities. They proposed that some convents should be abolished; that the liberty of the press should be restrained and limited; that the colloquies of Erasmus should be suppressed; that no ecclesiastic should enjoy a benefice out of his own country; that no cardinal should have a bishopric; that the questors of St Anthony and several other saints should be abolished; and, which was the best of all their proposals, that the effects and personal estates of ecclesiastics should be given to the poor. They concluded with complaining of the prodigious number of indigent and ragged priests who frequented St Peter's church; and declared, that it was a great scandal to see the whores lodged so magnificently at Rome, and riding through the streets on fine mules, while the cardinals and other ecclesiastics accompanied them in the most courteous manner.—This plan of reformation was turned into ridicule by Luther and Sturmius; and indeed it left unredressed the most intolerable grievances of which the Protestants complained.

23 Council of Trent proposed.

24 Plan of reformation proposed by the pope.

All this time the emperor had been labouring to persuade the Protestants to consent to the meeting of the council at Trent; but when he found them fixed in their opposition to this measure, he began to listen to the sanguinary measures of the pope, and resolved to terminate the disputes by force of arms. The elector of Saxony and landgrave of Hesse, who were the chief supporters of the Protestant cause, upon this took proper

25 War between the emperor and the Protestants.

proper measures to prevent their being surprised and overwhelmed by a superior force; but, before the horrors of war commenced, the great reformer Luther died in peace at Ayselben, the place of his nativity, in 1546.

The emperor and the pope had mutually resolved on the destruction of all who should dare to oppose the council of Trent. The meeting of it was to serve as a signal for taking up arms; and accordingly its deliberations were scarcely begun in 1546, when the Protestants perceived undoubted signs of the approaching storm, and a formidable union betwixt the emperor and pope, which threatened to crush and overwhelm them at once. This year indeed there had been a new conference at Ratisbon upon the old subject of accommodating differences in religion; but from the manner in which the debates were carried on, it plainly appeared that these differences could only be decided in the field of battle. The council of Trent, in the mean time, promulgated their decrees; while the reformed princes, in the diet of Ratisbon, protested against their authority, and were on that account proscribed by the emperor, who raised an army to reduce them to obedience. See *Father Paul's History of the Council of Trent*, and our articles PAUL (Father), and TRENT.

The elector of Saxony and the landgrave of Hesse led their forces into Bavaria against the emperor, and cannonaded his camp at Ingoldstalt. It was supposed that this would bring on an engagement, which would probably have been advantageous to the cause of the reformed; but this was prevented, chiefly by the perfidy of Maurice duke of Saxony, who invaded the dominions of his uncle. Divisions were also fomented among the confederate princes, by the dissimulation of the emperor; and France failed in paying the subsidy which had been promised by its monarch: all which so discouraged the heads of the Protestant party, that their army soon dispersed, and the elector of Saxony was obliged to direct his march homewards. But he was pursued by the emperor, who made several forced marches, with a view to destroy his enemy before he should have time to recover his vigour. The two armies met near Muhlberg, on the Elbe, on the 24th of April 1547; and, after a bloody action, the elector was entirely defeated, and himself taken prisoner.—Maurice, who had so basely betrayed him, was now declared elector of Saxony; and by his intreaties Philip landgrave of Hesse, the other chief of the Protestants, was persuaded to throw himself on the mercy of the emperor, and to implore his pardon. To this he consented, relying on the promise of Charles for obtaining forgiveness, and being restored to liberty; but, notwithstanding these expectations, he was unjustly detained prisoner, by a scandalous violation of the most solemn convention. It is said that the emperor retracted his promise, and deluded this unhappy prince by the ambiguity of two German words. History indeed can scarce afford a parallel to the perfidious, mean-spirited, and despotic behaviour of the emperor in the present case. After having received in public the humble submission of the prince on his knees, and after having set him at liberty by a solemn treaty, he had him arrested anew without any reason, nay, without any pretence, and kept him close prisoner for several years. When Maurice remonstrated against this new confinement, the emperor answered, that he had never promised that the landgrave should not be imprisoned anew, but only that he should be exempted from perpetual imprisonment; and, to support this assertion, he produced the treaty, in which his ministers had perfidiously foisted *ewiger gefangnis*, which signifies a "perpetual prison," instead of *einiger gefangnis*, which signifies "any prison." This, however, is contested by some historians.

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The affairs of the Protestants now seemed to be desperate. In the diet of Augsburg, which was soon after called, the emperor required the Protestants to leave the decision of these religious disputes to the wisdom of the council which was to meet at Trent. The greatest part of the members consented to this proposal, being convinced by the powerful argument of an imperial army, which was at hand to dispel the darkness from the eyes of such as might otherwise have been blind to the force of Charles's reasoning. However, this general submission did not produce the effect which was expected from it. A plague which broke out, or was said to do so, in the city, caused the greatest part of the bishops to retire to Bologna; by which means the council was in effect dissolved, nor could all the intreaties and remonstrances of the emperor prevail upon the pope to re-assemble it without delay. During this interval, therefore, the emperor judged it necessary to fall upon some method of accommodating the religious differences, and maintaining peace until the council so long expected should be finally obtained. With this view he ordered Julius Pelugius bishop of Naumberg, Michael Sidonius, creature of the pope, and John Agricola, a native of Ayselben, to draw up a formulary which might serve as a rule of faith and worship, till the council should be assembled: but as this was only a temporary expedient, and had not the force of a permanent or perpetual institution, it thence obtained the name of the *Interim*.

27 The council suddenly dissolved.

28 A formulary drawn up by the emperor.

This project of Charles was formed partly with a design to vent his resentment against the pope, and partly to answer other political purposes. It contained all the essential doctrines of the church of Rome, though considerably softened by the artful terms which were employed, and which were quite different from those employed before and after this period by the council of Trent. There was even an affected ambiguity in many of the expressions, which made them susceptible of different senses, and applicable to the sentiments of both communions. The consequence of all this was, that the imperial creed was reprobated by both parties. However, it was promulgated with great solemnity by the emperor at Augsburg. The elector of Mentz, without even asking the opinion of the princes present, gave a sanction to this formula, as if he had been commissioned to represent the whole diet. Many kept silence through fear, and that silence was interpreted as a tacit consent. Some had the courage to oppose it, and these were reduced by force of arms; and the most deplorable scenes of bloodshed and violence were acted throughout the whole empire. Maurice, elector of Saxony, who had hitherto kept neutral, now assembled the whole of his nobility and clergy, in order to deliberate on this critical affair. At the head of the latter was Melancthon, whose word was respected as a law among the Protestants. But this

29 Displeases both parties.

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this man had not the courage of Luther; and was therefore on all occasions ready to make concessions, and to propose schemes of accommodation. In the present case, therefore, he gave it as his opinion, that the whole of the book called *Interim* could not by any means be adopted by the Protestants; but at same time he declared, that he saw no reason why this book might not be appproved, adopted, and received, as an authoritative rule in things that did not relate to the essential parts of religion, and which he accounted indifferent. But this scheme, instead of cementing the differences, made them much worse than ever; and produced a division among the Protestants themselves, which might have overthrown the Reformation entirely, if the emperor and pope had seized the opportunity.

30 Scheme of reconciliation by Melancthon.

31 A new council proposed at Trent.

In the year 1549, the pope (Paul III.) died; and was succeeded by Julius III. who, at the repeated solicitations of the emperor, consented to the re-assembling of a council at Trent. A diet was again held at Augsburg under the cannon of an imperial army, and Charles laid the matter before the princes of the empire. Most of those present gave their consent to it, and among the rest Maurice elector of Saxony; who consented on the following conditions: 1. That the points of doctrine which had already been decided there, should be re-examined. 2. That this examination should be made in presence of the Protestant divines. 3. That the Saxon Protestants should have a liberty of voting as well as of deliberating in the council. 4. That the pope should not pretend to preside in that assembly, either in person or by his legates. This declaration of Maurice was read in the diet, and his deputies insisted upon its being entered into the registers which the archbishop of Mentz obstinately refused. The diet was concluded in the year 1551; and, at its breaking up, the emperor desired the assembled princes and states to prepare all things for the approaching council, and promised to use his utmost endeavours to procure moderation and harmony, impartiality and charity, in the transactions of that assembly.

On the breaking up of the diet, the Protestants took such steps as they thought most proper for their own safety. The Saxons employed Melancthon, and the Wurtembergers Brengius, to draw up Confessions of Faith to be laid before the new council. The Saxon divines, however, proceeded no farther than Nuremberg, having received secret orders from Maurice to stop there: For the elector, perceiving that Charles had formed designs against the liberties of the German princes, resolved to take the most effectual measures for crushing his ambition at once. He therefore entered with the utmost secrecy and expedition into an alliance with the king of France, and several of the German princes, for the security of the rights and liberties of the empire; after which, assembling a powerful army in 1552, he marched against the emperor, who lay with a handful of troops at Inspruck, and expected no such thing. By this sudden and unforeseen accident Charles was so much dispirited, that he was willing to make peace almost on any terms. The consequence of this was, that he concluded a treaty at Passau, which by the Protestants is considered as the basis of their religious liberty. By the first three articles of this treaty it was agreed, that Maurice and the confederates should lay down their arms, and lend their troops to Ferdinand to assist him against the Turks; and that the landgrave of Hesse should be set at liberty. By the fourth it was agreed, that the Rule of Faith called the *Interim* should be considered as null and void: that the contending parties should enjoy the free and undisturbed exercise of their religion, until a diet should be assembled to determine amicably the present disputes (which diet was to meet in the space of six months); and that this religious liberty should continue always, in case it should be found impossible to come to an uniformity in doctrine and worship. It was also determined, that all those who had suffered banishment, or any other calamity, on account of their having been concerned in the league or war of Smalcald, should be reinstated in their privileges, possessions, and employments; that the imperial chamber at Spire should be open to the Protestants as well as to the Catholics; and that there should always be a certain number of Lutherans in that high court.—To this peace Albert, marquis of Brandenburg, refused to subscribe; and continued the war against the Roman-catholics, committing such ravages in the empire, that a confederacy was at last formed against him. At the head of this confederacy was Maurice elector of Saxony, who died of a wound he received in a battle fought on the occasion in 1553.

32 The emperor is surprised, and forced to a peace by the elector of Saxony.

The assembling of the diet promised by Charles was prevented by various incidents; however it met at Augsburg in 1555, where it was opened by Ferdinand in name of the emperor, and terminated those deplorable calamities which had so long desolated the empire. After various debates, the following acts were passed, on the 25th of September: That the Protestants who followed the Confession of Augsburg should be for the future considered as entirely free from the jurisdiction of the Roman pontiff, and from the authority and superintendance of the bishops; that they were left at perfect liberty to enact laws for themselves relating to their religious sentiments, discipline, and worship; that all the inhabitants of the German empire should be allowed to judge for themselves in religious matters, and to join themselves to that church whose doctrine and worship they thought the most pure and consonant to the spirit of true Christianity; and that all those who should injure or persecute any person under religious pretences, and on account of their opinions, should be declared and proceeded against as public enemies of the empire, invaders of its liberty, and disturbers of its peace.

33 Treaty of Augsburg.

Thus was the Reformation established in many parts of the German empire, where it continues to this day; nor have the efforts of the Popish powers at any time been able to suppress it, or even to prevent it from gaining ground. It was not, however, in Germany alone that a reformation of religion took place. Almost all the kingdoms of Europe began to open their eyes to the truth about the same time. The reformed religion was propagated in Sweden, soon after Luther's rupture with the church of Rome, by one of his disciples named *Olaus Petri*. The zealous efforts of this missionary were seconded by Gustavus Vasa, whom the Swedes had raised to the throne in place of Christiern king of Denmark, whose horrid barbarity lost him the crown. This prince, however, was as prudent

34 Account of the Reformation in Sweden.

prudent as he was zealous; and, as the minds of the Swedes were in a fluctuating ſtate, he wiſely avoided all kind of vehemence and precipitation in ſpreading the new doctrine. Accordingly, the firſt object of his attention was the inſtruction of his people in the ſacred doctrines of the Holy Scriptures: for which purpoſe he invited into his dominions ſeveral learned Germans, and ſpread abroad through the kingdom the Swediſh tranſlation of the Bible that had been made by Olaus Petri. Some time after this, in 1526, he appointed a conference at Upſal, between this reformer and Peter Gallius, a zealous defender of the ancient ſuperſtition, in which each of the champions was to bring forth his arguments, that it might be ſeen on which ſide the truth lay. In this diſpute Olaus obtained a ſignal victory; which contributed much to confirm Guſtavus in his perſuaſion of the truth of Luther's doctrine, and to promote its progreſs in Sweden. The following year another event gave the finiſhing ſtroke to its propagation and ſucceſs. This was the aſſembly of the ſtates at Weſteraas, where Guſtavus recommended the doctrine of the reformers with ſuch zeal, that, after warm debates fomented by the clergy in general, it was unanimouſly reſolved that the reformation introduced by Luther ſhould have place in Sweden. This reſolution was principally owing to the firmneſs and magnanimity of Guſtavus, who declared publicly, that he would lay down the ſceptre and retire from the kingdom, rather than rule a people enſlaved by the orders and authority of the pope, and more controuled by the tyranny of their biſhops than by the laws of their monarch. From this time the papal empire in Sweden was entirely overthrown, and Guſtavus declared head of the church.

In Denmark, the reformation was introduced as early as the year 1521, in conſequence of the ardent deſire diſcovered by Chriſtiern II. of having his ſubjects inſtructed in the doctrines of Luther. This monarch, notwithſtanding his cruelty, for which his name has been rendered odious, was nevertheleſs deſirous of delivering his dominions from the tyranny of the church of Rome. For this purpoſe, in the year 1520, he ſent for Martin Reinard, one of the diſciples of Carloſtadt, out of Saxony, and appointed him profeſſor of divinity at Hafnia; and after his death, which happened in 1521, he invited Carloſtadt himſelf to fill that important place. Carloſtadt accepted of this office indeed, but in a ſhort time returned to Germany; upon which Chriſtiern uſed his utmoſt endeavours to engage Luther to viſit his dominions, but in vain. However, the progreſs of Chriſtiern, in reforming the religion of his ſubjects, or rather of advancing his own power above that of the church, was checked, in the year 1523, by a conſpiracy, by which he was depoſed and baniſhed; his uncle Frederic, duke of Holſtein and Slefwic, being appointed his ſucceſſor.

Frederic conducted the reformation with much greater prudence than his predeceſſor. He permitted the Proteſtant doctors to preach publicly the ſentiments of Luther, but did not venture to change the eſtabliſhed government and diſcipline of the church. However, he contributed greatly to the progreſs of the reformation, by his ſucceſsful attempts in favour of religious liberty in an aſſembly of the ſtates held at Odenſee in 1527. Here he procured the publication of a famous edict, by which every ſubject of Denmark was declared free either to adhere to the tenets of the church of Rome, or to the doctrine of Luther. The papal tyranny was totally deſtroyed by his ſucceſſor Chriſtiern III. He began by ſuppreſſing the deſpotic authority of the biſhops, and reſtoring to their lawful owners a great part of the wealth and poſſeſſions which the church had acquired by various ſtratagems. This was followed by a plan of religious doctrine, worſhip, and diſcipline, laid down by Bugenhagius, whom the king had ſent for from Wittemberg for that purpoſe; and in 1539 an aſſembly of the ſtates at Odenſee gave a ſolemn ſanction to all theſe tranſactions.

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36 In France.

In France alſo, the reformation began to make ſome progreſs very early. Margaret queen of Navarre, ſiſter to Francis I. the perpetual rival of Charles V. was a great friend to the new doctrine; and it appears that, as early as the year 1523, there were in ſeveral of the provinces of France great numbers of people who had conceived the greateſt averſion both to the doctrine and tyranny of the church of Rome; among whom were many of the firſt rank and dignity, and even ſome of the epiſcopal order. But as their number increaſed daily, and troubles and commotions were excited in ſeveral places on account of the religious differences, the authority of the king intervened, and many perſons eminent for their virtue and piety were put to death in the moſt barbarous manner. Indeed Francis, who had either no religion at all, or, at beſt, no fixed and conſiſtent ſyſtem of religious principles, conducted himſelf towards the Proteſtants in ſuch a manner as beſt anſwered his private views. Sometimes he reſolved to invite Melancthon into France, probably with a view to pleaſe his ſiſter the queen of Navarre, whom he loved tenderly, and who had ſtrongly imbibed the Proteſtant principles. At other times he exerciſed the moſt infernal cruelty towards the reformed; and once made the following mad declaration, That if he thought the blood in his arm was tainted by the Lutheran hereſy, he would have it cut off; and that he would not ſpare even his own children, if they entertained ſentiments contrary to thoſe of the Catholic church.

About this time the famous Calvin began to draw the attention of the public, but more eſpecially of the queen of Navarre. His zeal expoſed him to danger; and the friends of the reformation, whom Francis was daily committing to the flames, placed him more than once in the moſt perilous ſituation, from which he was delivered by the interpoſition of the queen of Navarre. He therefore retired out of France to Baſil in Swiſſerland; where he publiſhed his Chriſtian Inſtitutions, and became afterwards ſo famous.

Thoſe among the French who firſt renounced the juriſdiction of the Romiſh church, are commonly called *Lutherans* by the writers of thoſe early times. Hence it has been ſuppoſed that they had all imbibed the peculiar ſentiments of Luther. But this appears by no means to have been the caſe: for the vicinity of the cities of Geneva, Lauſanne, &c. which had adopted the doctrines of Calvin, produced a remarkable effect upon the French Proteſtant churches; inſomuch that, about the middle of this century, they all entered into communion with the church of Geneva. The French Proteſtants were called *Huguenots** by their adverſaries,

* See *Huguenots.*

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versaries, by way of contempt. Their fate was very severe, being persecuted with unparalleled fury; and though many princes of the blood, and of the first nobility, had embraced their sentiments, yet in no part of the world did the reformers suffer so much†. At last all commotions were quelled by the fortitude and magnanimity of Henry IV. who in the year 1598 granted all his subjects full liberty of conscience by the famous Edict of Nantes, and seemed to have thoroughly established the reformation throughout his dominions. During the minority of Louis XIV. however, this edict was revoked by Cardinal Mazarine, since which time the Protestants have often been cruelly persecuted; nor was the profession of the reformed religion in France at any time so safe as in most other countries of Europe. See REVOLUTION.

† See France, n° 137, 141—149.

37 In the Netherlands, &c.

In the other parts of Europe the opposition to the church of Rome was but faint and ambiguous before the diet of Augsburg. Before that period, however, it appears from undoubted testimony, that the doctrine of Luther had made a considerable, though probably secret, progress through Spain, Hungary, Bohemia, Britain, Poland, and the Netherlands; and had in all these countries many friends, of whom several repaired to Wittemberg, in order to enlarge their knowledge by means of Luther's conversation. Some of these countries threw off the Romish yoke entirely, and in others a prodigious number of families embraced the principles of the reformed religion. It is certain indeed, and the Roman-catholics themselves acknowledge it without hesitation, that the Papal doctrines and authority would have fallen into ruin in all parts of the world at once, had not the force of the secular arm been employed to support the tottering edifice. In the Netherlands particularly, the most grievous persecutions took place, so that by the emperor Charles V. upwards of 100,000 were destroyed, while still greater cruelties were exercised upon the people by his son Philip II. The revolt of the United Provinces, however, and motives of real policy, at last put a stop to these furious proceedings; and, though in many provinces of the Netherlands, the establishment of the Popish religion was still continued, the Protestants have been long free of the danger of persecution on account of their principles.

38 In Italy.

The reformation made a considerable progress in Spain and Italy soon after the rupture between Luther and the Roman pontiff. In all the provinces of Italy, but more especially in the territories of Venice, Tuscany, and Naples, the superstition of Rome lost ground, and great numbers of people of all ranks expressed an aversion to the Papal yoke. This occasioned violent and dangerous commotions in the kingdom of Naples in the year 1546; which, however, were at last quelled by the united efforts of Charles V. and his viceroy Don Pedro di Toledo. In several places the pope put a stop to the progress of the reformation, by letting loose the inquisitors; who spread dreadful marks of their barbarity through the greatest part of Italy. These formidable ministers of superstition put so many to death, and perpetrated such horrid acts of cruelty and oppression, that most of the reformed consulted their safety by a voluntary exile, while others returned to the religion of Rome, at least in external appearance. But the inquisition, which frighted into the profession of Popery several Protestants in other parts of Italy, could never make its way into the kingdom of Naples; nor could either the authority or intreaties of the pope engage the Neapolitans to admit even visiting inquisitors.

Refo ti

3 In Spa

In Spain, several people embraced the Protestant religion, not only from the controversies of Luther, but even from those divines whom Charles V. had brought with him into Germany in order to refute the doctrines of Luther. For these doctors imbibed the pretended heresy instead of refuting it, and propagated it more or less on their return home. But the inquisition, which could obtain no footing in Naples, reigned triumphant in Spain, and by the most dreadful methods frightened the people back into Popery, and suppressed the desire of exchanging their superstition for a more rational plan of religion. It was indeed presumed that Charles himself died a Protestant; and it seems to be certain, that, when the approach of death had dissipated those schemes of ambition and grandeur which had so long blinded him, his sentiments became much more rational and agreeable to Christianity than they had ever been. All the ecclesiastics who had attended him, as soon as he expired, were sent to the inquisition, and committed to the flames, or put to death by some other method equally terrible. Such was the fate of Augustine Casal, the emperor's preacher; of Constantine Pontius, his confessor; of Egidius, whom he had named to the bishopric of Tortosa; of Bartholomew de Caranza, a Dominican, who had been confessor to King Philip and Queen Mary; with 20 others of less note.

4 In Eng land.

In England, the principles of the reformation began to be adopted as soon as an account of Luther's doctrines could be conveyed thither. In that kingdom there were still great remains of the sect called *Lollards*, whose doctrine resembled that of Luther; and among whom, of consequence, the sentiments of our reformer gained great credit. Henry VIII. king of England at that time was a violent partisan of the church of Rome, and had a particular veneration for the writings of Thomas Aquinas. Being informed that Luther spoke of his favourite author with contempt, he conceived a violent prejudice against the reformer, and even wrote against him, as we have already observed. Luther did not hesitate at writing against his majesty, overcame him in argument, and treated him with very little ceremony. The first step towards public reformation, however, was not taken till the year 1529. Great complaints had been made in England, and of a very ancient date, of the usurpations of the clergy; and by the prevalence of the Lutheran opinions, these complaints were now become more general than before. The House of Commons, finding the occasion favourable, passed several bills, restraining the impositions of the clergy: but what threatened the ecclesiastical order with the greatest danger were the severe reproaches thrown out almost without opposition in the house against the dissolute lives, ambition, and avarice of the priests, and their continual encroachments on the privileges of the laity. The bills for regulating the clergy met with opposition in the House of Lords; and bishop Fisher imputed them to want of faith in the Commons, and to a formed design, proceeding from heretical and Lutheran principles, of robbing the church of her patrimony, and overturning the national religion. The Commons, however, complained

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ed to the king, by their speaker Sir Thomas Audley, of these reflections thrown out against them; and the bishop was obliged to retract his words.

Though Henry had not the least idea of rejecting any, even of the most absurd Romish superstitions, yet as the oppressions of the clergy suited very ill with the violence of his own temper, he was pleased with every opportunity of lessening their power. In the parliament of 1531, he showed his design of humbling the clergy in the most effectual manner. An obsolete statute was revived, from which it was pretended that it was criminal to submit to the legatine power which had been exercised by cardinal Wolsey. By this stroke the whole body of clergy was declared guilty at once. They were too well acquainted with Henry's disposition, however, to reply, that their ruin would have been the certain consequence of their not submitting to Wolsey's commission which had been given by royal authority. Instead of making any defence of this kind, they chose to throw themselves on the mercy of their sovereign; which, however, it cost them 118,840 l. to procure. A confession was likewise extorted from them, that the king was protector and supreme head of the church of England; though some of them had the dexterity to get a clause inserted, which invalidated the whole submission, viz. *in so far as is permitted by the law of Christ*.

The king, having thus begun to reduce the power of the clergy, kept no bounds with them afterwards. He did not indeed attempt any reformation in religious matters; nay, he persecuted most violently such as did attempt this in the least. Indeed, the most essential article of his creed seems to have been his own supremacy; for whoever denied this, was sure to suffer the most severe penalties, whether Protestant or Papist. But an account of the absurd and cruel conduct of this prince, and of his final quarrel with the pope on account of his refusing a dispensation to marry Anne Boleyn, is given under the article ENGLAND, n° 253—292.

He died in 1547, and was succeeded by his only son Edward VI. This amiable prince, whose early youth was crowned with that wisdom, sagacity, and virtue, that would have done honour to advanced years, gave new spirit and vigour to the Protestant cause, and was its brightest ornament, as well as its most effectual support. He encouraged learned and pious men of foreign countries to settle in England, and addressed a particular invitation to Martin Bucer and Paul Fagius, whose moderation added a lustre to their other virtues, that, by the ministry and labours of these eminent men, in concert with those of the friends of the Reformation in England, he might purge his dominions from the sordid fictions of popery, and establish the pure doctrines of Christianity in their place. For this purpose, he issued out the wisest orders for the restoration of true religion; but his reign was too short to accomplish fully such a glorious purpose. In the year 1553, he was taken from his loving and afflicted subjects, whose sorrow was inexpressible, and suited to their loss. His sister Mary (the daughter of Catharine of Arragon, from whom Henry had been separated by the famous divorce), a furious bigot to the church of Rome, and a princess whose natural character, like the spirit of her religion, was despotic and cruel, succeeded him on the British throne, and imposed anew the arbitrary laws and the tyrannical yoke of Rome upon the people of England. Nor were the methods she employed in the cause of superstition better than the cause itself, or tempered by any sentiments of equity or compassion. Barbarous tortures and death, in the most shocking forms, awaited those who opposed her will, or made the least stand against the restoration of Popery. And among many other victims, the learned and pious Cranmer, archbishop of Canterbury, who had been one of the most illustrious instruments of the Reformation in England, fell a sacrifice to her fury. This odious scene of persecution was happily concluded in the year 1558, by the death of the queen, who left no issue; and, as soon as her successor the lady Elizabeth ascended the throne, all things assumed a new and a pleasing aspect. This illustrious princess, whose sentiments, counsels, and projects, breathed a spirit superior to the natural softness and delicacy of her sex, exerted this vigorous and manly spirit in the defence of oppressed conscience and expiring liberty, broke anew the despotic yoke of Papal authority and superstition, and, delivering her people from the bondage of Rome, established that form of religious doctrine and ecclesiastical government which still subsists in England. This religious establishment differs, in some respects, from the plan that had been formed by those whom Edward VI. had employed for promoting the cause of the Reformation, and approaches nearer to the rites and discipline of former times; though it is widely different, and, in the most important points, entirely opposite to the principles of the Roman hierarchy. See ENGLAND, n° 293, &c.

41 Reformation in Ireland.

The cause of the reformation underwent in Ireland the same vicissitudes and revolutions that had attended it in England. When Henry VIII. after the abolition of the Papal authority, was declared supreme head upon earth of the church of England, George Brown, a native of England, and a monk of the Augustine order, whom that monarch had created, in the year 1535, archbishop of Dublin, began to act with the utmost vigour in consequence of this change in the hierarchy. He purged the churches of his diocese from superstition in all its various forms, pulled down images, destroyed relics, abolished absurd and idolatrous rites, and, by the influence as well as authority he had in Ireland, caused the king's supremacy to be acknowledged in that nation. Henry showed, soon after, that this supremacy was not a vain title; for he banished the monks out of that kingdom, confiscated their revenues, and destroyed their convents. In the reign of Edward VI. still farther progress was made in the removal of Popish superstitions, by the zealous labours of bishop Brown, and the auspicious encouragement he granted to all who exerted themselves in the cause of the Reformation. But the death of this excellent prince, and the accession of queen Mary, had like to have changed the face of affairs in Ireland as much as in England; but her designs were disappointed by a very curious adventure, of which the following account has been copied from the papers of Richard earl of Corke. "Queen Mary having dealt severely with the Protestants in England, about the latter end of her reign signed a commission for to take the same course with them in Ireland; and to execute the same with greater force, she nominates Dr Cole one of the commissioners. This Doctor coming, with the commission, to Chester

42 Curious discovery of a Popish conspiracy in England.

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on his journey, the mayor of that city hearing that her majesty was sending a messenger into Ireland, and he being a churchman, waited on the Doctor, who in discourse with the mayor taketh out of a cloke-bag a leather box, saying unto him, *Here is a commission that shall fetch the Heretics of Ireland*, calling the Protestants by that title. The good woman of the house being well affected to the Protestant religion, and also having a brother named *John Edmonds* of the same, then a citizen in Dublin, was much troubled at the Doctor's words; but watching her convenient time while the mayor took his leave, and the Doctor complimented him down the stairs, she opens the box, takes the commission out, and places in lieu thereof a sheet of paper with a pack of cards wrapt up therein, the knave of clubs being placed uppermost. The Doctor coming up to his chamber, suspecting nothing of what had been done, put up the box as formerly. The next day going to the water-side, wind and weather serving him, he sails towards Ireland, and landed on the 7th of October 1558 at Dublin. Then coming to the castle, the Lord Fitz-Walters being lord-deputy, sent for him to come before him and the privy-council; who, coming in, after he had made a speech relating upon what account he came over, he presents the box unto the lord-deputy; who causing it to be opened, that the secretary might read the commission, there was nothing save a pack of cards with the knave of clubs uppermost; which not only startled the lord-deputy and council, but the Doctor, who assured them he had a commission, but knew not how it was gone. Then the lord-deputy made answer: Let us have another commission, and we will shuffle the cards in the meanwhile. The Doctor being troubled in his mind, went away, and returned into England, and coming to the court obtained another commission; but staying for a wind on the water-side, news came to him that the queen was dead: and thus God preserved the Protestants of Ireland." Queen Elizabeth was so delighted with this story, which was related to her by lord Fitz-Walter on his return to England, that she sent for Elizabeth Edmonds, whose husband's name was *Mattershad*, and gave her a pension of 40 l. during her life.

43 Of the Reformation in Scotland.

In Scotland, the seeds of reformation were very early sown, by several noblemen who had resided in Germany during the religious disputes there. But for many years it was suppressed by the power of the pope, seconded by inhuman laws and barbarous executions. The most eminent opposer of the Papal jurisdiction was John Knox, a disciple of Calvin, a man of great zeal and invincible fortitude. On all occasions he raised the drooping spirits of the reformers, and encouraged them to go on with their work notwithstanding the opposition and treachery of the queen-regent; till at last, in 1561, by the assistance of an English army sent by Elizabeth, Popery was in a manner totally extirpated throughout the kingdom. From this period the form of doctrine, worship, and discipline established by Calvin at Geneva, has had the ascendancy in Scotland. But for an account of the difficulties which the Scottish reformers had to struggle with, and the manner in which these were overcome, &c. see SCOTLAND.

For further information on the subject of the reformation in general, we refer our readers to the works of Burnet and Brandt, to Beausobre's *Histoire de la Reformation dans l'Empire, et les Etats de la Confession d'Augsbourg depuis* 1517—1530, in 4 vols 8vo, Berlin 1785, and Mosheim's Ecclesiastical History. See also Sleidan *De Statu Religionis & Reipublicæ Carolo V.*; *Cæsaris Commentarii*; and Father Paul's History of the Council of Trent.

Refraction il Refuge.

REFRACTION, in general, is the deviation of a moving body from its direct course, occasioned by the different density of the medium in which it moves; or it is a change of direction occasioned by a body's falling obliquely out of one medium into another. The word is chiefly made use of with regard to the rays of light. See OPTICS (*Index*) at *Refraction*.

REFRANGIBILITY OF LIGHT, the disposition of rays to be refracted. The term is chiefly applied to the disposition of rays to produce different colours, according to their different degrees of refrangibility. See CHROMATICS and OPTICS *passim*.

REFRIGERATIVE, in medicine, a remedy which refreshes the inward parts by cooling them; as clysters, ptisans, &c.

REFRIGERATORY, in chemistry, a vessel filled with cold water, through which the worm passes in distillations; the use of which is to condense the vapours as they pass through the worm.

CITIES OF REFUGE, were places provided as *Asyla*, for such as against their will should happen to kill a man. Of these cities there were three on each side Jordan: on this side were Kedesh of Naphtali, Hebron, and Schechem; beyond Jordan were Bezer, Golan, and Ramoth-Gilead. When any of the Hebrews, or strangers that dwelt in their country, happened to spill the blood of a man, they might retire thither to be out of the reach of the violent attempts of the relations of the deceased, and to prepare for their defence and justification before the judges. The manslayer underwent two trials: first before the judges of the city of refuge to which he had fled; and secondly before the judges of his own city. If found guilty, he was put to death with all the severity of the law. If he was acquitted, he was not immediately set at liberty; but, to inspire a degree of horror against even involuntary homicide, he was reconducted to the place of refuge, and obliged to continue there in a sort of banishment till the death of the high-priest. If, before this time, he ventured out, the revenger of blood might freely kill him; but after the high-priest's death he was at liberty to go where he pleased without molestation. It was necessary that the person who fled to any of the cities of refuge should understand some trade or calling, that he might not be burthensome to the inhabitants. The cities of refuge were required to be well supplied with water and necessary provisions. They were also to be of easy access, to have good roads leading to them, with commodious bridges where there was occasion. The width of the roads was to be 32 cubits or 48 feet at least. It was further required, that at all cross-ways direction-posts should be erected, with an inscription pointing out the road to the cities of refuge. The 15th of Adar, which answers to our February moon, was appointed for the city magistrates to see that the roads were in good condition. No person in any of these cities was allowed to make weapons, lest the relations of the deceased should be furnished with the means of gratifying their revenge. Deut. xix. 3. iv. 41. 43.; Josh. xx. 7. Three other cities of refuge were conditionally promised, but never granted. See ASYLUM.

REFUGEES, a term at first applied to the French Protestants, who, by the revocation of the edict of Nantz, were constrained to fly from persecution, and take refuge in foreign countries. Since that time, however, it has been extended to all such as leave their country in times of distress; and hence, since the revolt of the British colonies in America, we have frequently heard of *American refugees*.

REGALE, a magnificent entertainment or treat, given to ambassadors and other persons of distinction, to entertain or do them honour.

It is usual in Italy, at the arrival of a traveller of eminence, to send him a regale, that is, a present of sweetmeats, fruits, &c. by way of refreshment.

REGALIA, in law, the rights and prerogatives of a king. See PREROGATIVE.

Regalia is also used for the apparatus of a coronation; as the crown, the sceptre with the cross, that with the dove, St Edward's staff, the globe, and the orb with the cross, four several swords, &c.—The regalia of Scotland were deposited in the castle of Edinburgh in the year 1707, in what is called the *Jewel Office*. This room was lately opened by some commissioners appointed by the king, when the large chest in which it is supposed they were placed was found; but as it has not, that we have heard of, been opened, it is impossible to say whether they be there or not. It is very generally thought they were carried to the Tower of London in the reign of Queen Anne; and a crown is there shewn which is called the Scotch crown. We do not believe, however, that that is the real crown of Scotland; and think it probable that the Scotch regalia are in the chest which was lately found. If they are not there, they must have been taken away by stealth, and either destroyed or melted down, for we do not believe that they are in the Tower of London.

LORD *of* REGALITY, in Scots law. See LAW, n° clviii. 4.

COURT *of* REGARD. See *FOREST-Courts*.

REGARDANT, in heraldry, signifies looking behind; and it is used for a lion, or other beast, with his face turned towards his tail.

REGARDER, an ancient officer of the king's forest, sworn to make the regard of the forest every year; that is, to take a view of its limits, to inquire into all offences and defaults committed by the foresters within the forest, and to observe whether all the officers executed their respective duties. See *FOREST-Laws*.

REGATA, or REGATTA, a species of amusement peculiar to the republic of Venice. This spectacle has the power of exciting the greatest emotions of the heart, admiration, enthusiasm, a sense of glory, and the whole train of our best feelings. The grand regata is only exhibited on particular occasions, as the visits of foreign princes and kings at Venice.

It is difficult to give a just idea of the ardour that the notice of a *regata* spreads among all classes of the inhabitants of Venice. Proud of the exclusive privilege of giving such a spectacle, through the wonderful local circumstances of their city, they are highly delighted with making preparations a long time before, in order to contribute all they can towards the perfection and enjoyment of the spectacle. A thousand interests are formed and augmented every day; parties in favour of the different competitors who are known; the protection of young noblemen given to the gondoliers in their service; the desire of honours and rewards in the aspirants; and, in the midst of all this, that ingenious national industry, which awakes the Venetians from their habitual indolence, to derive advantage from the business and agitation of the moment: all these circumstances united give to the numerous inhabitants of this lively city a degree of spirit and animation which render it during that time a delightful abode in the eyes of the philosopher and the stranger. Crowds of people flock from the adjacent parts, and travellers joyfully repair to this scene of gaiety and pleasure.

Although it is allowable for any man to go and inscribe his name in the list of combatants until the fixed number is complete, it will not be amiss to remark one thing, which has relation to more ancient times. The state of a gondolier * is of much consideration among the people; which is very natural, that having been the primitive condition of the inhabitants of this country. But, besides this general consideration, there are among them some families truly distinguished and respected by their equals, whose antiquity is acknowledged, and who, on account of a succession of virtuous men, able in their profession, and honoured for the prizes they have carried off in these contests, form the body of noble gondoliers; often more worthy of that title than the higher order of nobility, who only derive their honours from the merit of their ancestors, or from their own riches. The consideration for those families is carried so far, that, in the disputes frequently arising among the gondoliers in their ordinary passage of the canals, we sometimes see a quarrel instantly made up by the simple interposition of a third person, who has chanced to be of this reverend body. They are rigid with respect to misalliances in their families, and they endeavour reciprocally to give and take their wives among those of their own rank. But we must remark here, with pleasure, that these distinctions infer no inequality of condition, nor admit any oppression of inferiors, being founded solely on laudable and virtuous opinions. Distinctions derived from fortune only, are those which always outrage nature, and often virtue.

* See Gondolat

In general, the competitors at the great regatas are chosen from among these families of reputation. As soon as they are fixed upon for this exploit, they spend the intermediate time in preparing themselves for it, by a daily assiduous and fatiguing exercise. If they are in service, their masters during that time not only give them their liberty, but also augment their wages. This custom would seem to indicate, that they look upon them as persons consecrated to the honour of the nation, and under a sort of obligation to contribute to its glory.

At last the great day arrives. Their relations assemble together: they encourage the heroes, by calling to their minds the records of their families; the women present the oar, beseeching them, in an epic tone, to remember that they are the sons of famous men, whose steps they will be expected to follow: this they do with as much solemnity as the Spartan women presented the shield to their sons, bidding them either return with or upon it. Religion, as practised among the lower class of people, has its share in the preparations for this enterprize. They cause masses to be said; they make vows to some particular church; and they arm their boats for the contest with the images of those saints who are most in vogue. Sorcerers are not forgotten

upon this occasion. For gondoliers who have lost the regatta, or lose, that without had been practised against them, or accidently they must have won the day. Such a supposition prevents a poor fellow from thinking ill of his lot; an opinion that might be favourable to him another time.

The course is about four miles. The boats start from a certain place, run through the great winding canal, which divides the town into two parts, turn round a pocket, and, coming back the same way, go and seize the prize, which is fixed at the acutest angle of the great canal, on the convex side, so that the point of sight may be the more extended, and the prize seized in the sight of the spectators on both sides.

According to the number of competitors, different races are performed in different sorts of boats; some with one oar and others with two. The prizes proposed are four, indicated by four flags of different colours, with the different value of the prizes marked upon them.—These flags, public and glorious monuments, are the prizes to which the competitors particularly aspire. But the government always adds to each a genteel sum of money; besides that the conquerors, immediately after the victory, are surrounded by all the *beau monde*, who congratulate and make them presents; after which they go, bearing their honourable trophy in their hand, down the whole length of the canal, and receive the applause of innumerable spectators.

This grand canal, ever striking by the singularity and beauty of the buildings which border it, is, upon these occasions, covered with an infinity of spectators, in all sorts of barges, boats, and gondolas. The element on which they move is scarcely seen; but the noise of oars, the agitation of arms and bodies in perpetual motion, indicate the spectacle to be upon the water. At certain distances, on each side of the shore, are erected little amphitheatres and scaffoldings, where are placed bands of music; the harmonious sound of which predominates now and then over the buzzing noise of the people. Some days before a *regata*, one may see on the great canal many boats for pleasure and entertainment. The young noble, the citizen, the rich artizan, mounts a long boat of six or eight oars; his gondoliers decorated with rich and singular dresses, and the vessel itself adorned with various stuffs. Among the nobles there are always a number who are at a considerable expence in these decorations; and at the *regata* itself exhibit on the water personages of mythologic story, with the heroes of antiquity in their train, or amuse themselves with representing the costumi of different nations: in short, people contribute with a mad sort of magnificence, from all quarters, to this masquerade, the favourite diversion of the Venetians. But these great machines, not being the less in motion on account of their ornaments, are not merely destined to grace the show: they are employed at the regata, at every moment, to range the people, to protect the course, and to keep the avenue open and clear to the goal. The nobility, kneeling upon cushions at the prow of their vessels, are attentive to these matters, and announce their orders to the most restive, by darting at them little gilded or silvered balls, by means of certain bows, with which they are furnished on this occasion. And this is the only appearance of coercion in the Venetian police on these days of the greatest tumult: nor is there to be seen, in any part of the city, a body of guards or patrol, nor even a gun or a halbert. The mildness of the nation, its gaiety, its education in the habit of believing that the government is ever awake, that it knows and sees every thing; its respectful attachment to the body of patricians; the sole aspect of certain officers of the police in their robes, dispersed in different places, at once operate and explain that tranquillity, that security, which we see in the midst of the greatest confusion, and that surprising docility in so lively and fiery a people. Regattas have been attempted on the river Thames, but they were but humble imitations of the Venetian amusement.

REGEL, or RIGEL, a fixed star of the first magnitude, in Orion's left foot.

REGENERATION, in theology, the act of being born again by a spiritual birth, or the change of heart and life experienced by a person who forsakes a course of vice, and sincerely embraces a life of virtue and piety.

REGENSBURG, or RATISBON. See RATISBON.

REGENT, one who governs a kingdom during the minority or absence of the king.

In France, the queen-mother had the regency of the kingdom during the minority of the king, under the title of *queen-regent*.

In England, the methods of appointing this guardian or regent have been so various, and the duration of his power so uncertain, that from hence alone it may be collected that his office is unknown to the common law; and therefore (as Sir Edward Coke says, 4 Inst. 58.) the surest way is to have him made by authority of the great council in parliament. The earl of Pembroke by his own authority assumed in very troublesome times the regency of Henry III. who was then only nine years old; but was declared of full age by the pope at 17, confirmed the great charter at 18, and took upon him the administration of the government at 20. A guardian and councils of regency were named for Edward III. by the parliament, which deposed his father; the young king being then 15, and not assuming the government till three years after. When Richard II. succeeded at the age of 11, the duke of Lancaster took upon him the management of the kingdom till the parliament met, which appointed a nominal council to assist him. Henry V. on his death-bed named a regent and a guardian for his infant son Henry VI. then nine months old: but the parliament altered his disposition, and appointed a protector and council, with a special limited authority. Both these princes remained in a state of pupilage till the age of 23. Edward V. at the age of 13, was recommended by his father to the care of the duke of Gloucester; who was declared protector by the privy-council. The statutes 25 Hen. VIII. c. 12. and 28 Hen. VIII. c. 7. provided, that the successor, if a male and under 18, or if a female and under 16, should be till such age in the governance of his or her natural mother, (if approved by the king), and such other counsellors as his majesty should by will or otherwise appoint: and he accordingly appointed his 16 executors to have the government of his son Edward VI. and the kingdom, which executors elected the earl of Hartford protector. The statutes 24 Geo. II. c. 24. in case the crown should descend to any of the children of Frederic late prince of Wales under the age of 18, appointed the princess dowager;—and that of 5 Geo. III. c. 27. in case of a like descent to any of his present majesty's children, empowers the king to name either the

queen

queen or princeſs dowager, or any deſcendant of king George II. reſiding in this kingdom; — to be guardian and regent till the ſucceſſor attains ſuch age, aſſiſted by a council of regency; the powers of them all being expreſsly defined and ſet down in the ſeveral acts.

Regent alſo ſignifies a profeſſor of arts and ſciences in a college, having pupils under his care; but it is generally reſtrained to the lower claſſes, as to rhetoric, logic, &c. thoſe of philoſophy being called *profeſſors*. In the Engliſh univerſities it is applied to Maſters of Arts under five years ſtanding, and to Doctors under two, as non-regent is to thoſe above that ſtanding.

REGGIO, an ancient and conſiderable town of Italy, in the kingdom of Naples, and in the Farther Calabria, with an archbiſhop's ſee, and a woollen manufactory. It is ſeated in a delightful country, which produces plenty of oranges, and all their kindred fruits. The olives are exquiſite, and high-flavoured. The town, however, can boaſt of neither beautiful buildings nor ſtrong fortifications. Of its edifices the Gothic cathedral is the only ſtriking one, but it affords nothing curious in architecture. The citadel is far from formidable, according to the preſent ſyſtem of tactics; nor could the city walls make a long reſiſtance againſt any enemy but Barbary corſairs; and even theſe they have not always been able to repel, for in 1543 it was laid in aſhes by Barbaroſſa. Muſtapha ſacked it 15 years after, and the deſolation was renewed in 1593 by another ſet of Turks. Its expoſed ſituation, on the very threſhold of Italy, and fronting Sicily, has from the earlieſt period rendered it liable to attacks and devaſtation. The Chalcidians ſeized upon it, or, according to the uſual Greek phraſe, founded it, and called the colony *Rhegion*, from a word that means a break or crack, alluding to its poſition on the point where Sicily broke off from the continent. Anaxilas oppreſſed its liberties. Dionyſius the Elder took it, and put many of the principal citizens to death, in revenge for their having refuſed his alliance. The Campanian legion, ſent to protect the Rhegians, turned its ſword againſt them, maſſacred many inhabitants, and tyrannized over the remainder, till the Roman ſenate thought proper to puniſh theſe traitors with exemplary ſeverity, though at the ſame time it entered into league with the revolted garriſon of Meſſina. This union with a ſet of villains, guilty of the ſame crime, proved that no love of juſtice, but political reaſons alone, drew down its vengeance on the Campanians.— It is about 12 miles S. E. of Meſſina, and 190 S. by E. of Naples. E. Long. 16. 0. N. Lat. 38. 4.

Reggio, an ancient, handſome, and ſtrong town of Italy, in the duchy of Modena, with a ſtrong citadel, and a biſhop's ſee. It has been ruined ſeveral times by the Goths, and other nations. In the cathedral are paintings by the greateſt maſters; and in the ſquare is the ſtatue of Brennus, chief of the Gauls. The inhabitants are about 22,000, who carry on a great trade in ſilk. It was taken by prince Eugene in 1706, and by the king of Sardinia in 1742. It is ſeated in a fertile country to the ſouth of the Apennines, and to the north of a ſpacious plain, 15 miles north-weſt of Modena, and 80 ſouth-eaſt of Milan. E. Long. 11. 5. N. Lat. 44. 43. —The duchy of this name is bounded on the weſt by that of Modena, and produces a great deal of ſilk, and belongs to the duke of Modena, except the marquiſate of St Martin, which belongs to a prince of that name.

REGIAM MAJESTATEM. See Law, n° clv. 3.

REGICIDE, KING-KILLER, a word chiefly uſed with us in ſpeaking of the perſons concerned in the trial, condemnation, and execution, of king Charles I.

REGIFUGIUM was a feaſt celebrated at Rome on the 24th of February, in commemoration of the expulſion of *Tarquinius Superbus*, and the abolition of regal power. It was alſo performed on the 26th of May, when the king of the ſacrifices, or *Rex Sacrorum*, offered bean flour and bacon, in the place where the aſſemblies were held. The ſacrifice being over, the people haſted away with all ſpeed, to denote the precipitate flight of King Tarquin.

REGIMEN, the regulation of diet, and, in a more general ſenſe, of all the non-naturals, with a view to preſerve or reſtore health. See Abstinence, Aliment, Food, Diet, Drink, and Medicine.

The viciſſitude of exerciſe and reſt forms alſo a neceſſary part of regimen. See Exercise.

It is beneficial to be at reſt now and then, but more ſo frequently to uſe exerciſe; becauſe inaction renders the body weak and liſtleſs, and labour ſtrengthens it. But a medium is to be obſerved in all things, and too much fatigue is to be avoided: for frequent and violent exerciſe overpowers the natural ſtrength, and waſtes the body; but moderate exerciſe ought always to be uſed before meals. Now, of all kinds of exerciſe, riding on horſeback is the moſt convenient: or if the perſon be too weak to bear it, riding in a coach, or at leaſt in a litter: next follow fencing, playing at ball, running, walking. But it is one of the inconveniences of old age, that there is ſeldom ſufficient ſtrength for uſing bodily exerciſe, though it be extremely requiſite for health: wherefore frictions with the fleſh-bruſh are neceſſary at this time of life; which ſhould be performed by the perſon himſelf, if poſſible; if not, by his ſervants.

Sleep is the ſweet ſoother of cares, and reſtorer of ſtrength; as it repairs and replaces the waſtes that are made by the labours and exerciſes of the day. But exceſſive ſleep has its inconveniences; for it blunts the ſenſes, and renders them leſs fit for the duties of life. The proper time for ſleep is the night, when darkneſs and ſilence invite and bring it on: day-ſleep is leſs refreſhing; which rule if it be proper for the multitude to obſerve, much more is the obſervance of it neceſſary for perſons addicted to literary ſtudies, whoſe minds and bodies are more ſuſceptible of injuries.

Regimen, in grammar, that part of ſyntax, or conſtruction, which regulates the dependency of words, and the alterations which one occaſions in another.

Regimen for Seamen. See Seamen.

REGIMENT, is a body of men, either horſe, foot, or artillery, commanded by a colonel, lieutenant-colonel, and major. Each regiment of foot is divided into companies; but the number of companies differs: though in Britain our regiments are generally 10 companies, one of which is always grenadiers, excluſive of the two independent companies. Regiments of horſe are commonly ſix troops, but there are ſome of nine. Dragoon regiments are generally in war-time 8 troops, and in time of peace but 6. Each regiment has a chaplain, quarter-maſter, adjutant, and ſurgeon. Some German regiments conſiſt of 2000 foot; and the regiment of Picardy in France conſiſted of 6000, being 120 companies, of 50 men in each company.

Regimentals
Regiment.

Regiments were first formed in France in the year 1558, and in England in the year 1660.

REGIOMONTANUS. See Muller.

REGION, in geography, a large extent of land, inhabited by many people of the same nation, and inclosed within certain limits or bounds.

The modern astronomers divide the moon into several regions, or large tracts of land, to each of which they give its proper name.

Region, in physiology, is taken for a division of our atmosphere, which is divided into the upper, middle, and lower regions.

The upper region commences from the tops of the mountains, and reaches to the utmost limits of the atmosphere. In this region reign a perpetual, equable, calmness, clearness, and serenity. The middle region is that in which the clouds reside, and where meteors are formed, extending from the extremity of the lowest to the tops of the highest mountains. The lowest region is that in which we breathe, which is bounded by the reflection of the sun's rays; or by the height to which they rebound from the earth. See Atmosphere and Air.

Ethereal Region, in cosmography, is the whole extent of the universe, in which is included all the heavenly bodies, and even the orb of the fixed stars.

Elementary Region, according to the Aristotelians, is a sphere terminated by the concavity of the moon's orb, comprehending the atmosphere of the earth.

Region, in anatomy, a division of the human body, otherwise called *cavity*, of which anatomists reckon three, viz. the upper region, or that of the head; the middle region, that of the thorax or breast; and the lower, the abdomen, or belly. See Anatomy.

Region, in ancient Rome, was a part or division of the city. The regions were only four in number, till Augustus Cæsar's time, who divided the city into fourteen; over each of which he settled two surveyors, called *curatores viarum*, who were appointed annually, and took their divisions by lot. These fourteen regions contained four hundred and twenty-four streets, thirty-one of which were called *greater* or *royal streets*, which began at the gilt pillar that stood at the entry of the open place, in the middle of the city. The extent of these divisions varied greatly, some being from 12000 or 13000 to 33000 feet or upwards in circumference. Authors, however, are not agreed as to the exact limits of each. The curatores viarum wore the purple, had each two lictors in their proper divisions, had slaves under them to take care of fires, that happened to break out. They had also two officers, called *Annunciatores*, in each region, to give account of any disorders. Four *vico-magistri* also were appointed in each street, who took care of the streets allotted them, and carried the orders of the city to each citizen.

REGISTER, a public book, in which are entered and recorded memoirs, acts, and minutes, to be had recourse to occasionally for knowing and proving matters of fact. Of these there are several kinds; as,

1. Register of deeds in Yorkshire and Middlesex, in which are registered all deeds, conveyances, wills, &c. that affect any lands or tenements in those counties, which are otherwise void against any subsequent purchasers or mortgagees, &c. but this does not extend to any copyhold estate, nor to leases at a rack-rent, or where they do not exceed 21 years. The registered memorials must be ingrossed on parchment, under the hand and seal of some of the granters or grantees, attested by witnesses who are to prove the signing or sealing of them and the execution of the deed. But these registers, which are confined to two counties, are in Scotland general, by which the laws of North Britain are rendered very easy and regular. Of these there are two kinds; the one general, fixed at Edinburgh, under the direction of the lord-register; and the other is kept in the several shires, stewartries, and regalities, the clerks of which are obliged to transmit the registers of their respective courts to the general register.

2. Parish-registers are books in which are registered the baptisms, marriages, and burials, of each parish.

Registers were kept both at Athens and Rome, in which were inserted the names of such children as were to be brought up, as soon as they were born. Marcus Aurelius required all free persons to give in accounts of their children, within 30 days after the birth, to the treasurer of the empire, in order to their being deposited in the temple of Saturn, where the public acts were kept. Officers were also appointed as public registers in the provinces, that recourse might be had to their lists of names, for settling disputes, or proving any person's freedom.

Register Ships, in commerce, are vessels which obtain a permission either from the king of Spain, or the council of the Indies, to traffic in the ports of the Spanish West Indies; which are thus called, from their being registered before they set sail from Cadiz for Buenos Ayres.

REGISTERS, in chemistry, are holes, or chinks with stopples, contrived in the sides of furnaces, to regulate the fire; that is, to make the heat more intense or remiss, by opening them to let in the air, or keeping them close to exclude it. There are also registers in the steam-engine. See *Steam-Engine*.

REGISTRAR, an officer in the English universities, who has the keeping of all the public records.

REGIUM, Regium *Lepidi*, *Regium Lepidum*, (anc. geog.); a town of Cisalpine Gaul, on the Via Æmilia, so called from Æmilius Lepidus, who was consul with C. Flaminius; but whence it was surnamed *Regium* is altogether uncertain. Tacitus relates, that at the battle of Bedriacum, a bird of an unusual size was seen perching in a famous grove near Regium Lepidum. Now called *Reggio*, a city of Modena. E. Long. 11. 0. N. Lat. 44. 45. See Reggio.

REGNARD (John Francis), one of the best French comic writers after Moliere, was born at Paris in 1647. He had scarcely finished his studies, when an ardent passion for travelling carried him over the greatest part of Europe. When he settled in his own country, he was made a treasurer of France, and lieutenant of the waters and forests: he wrote a great many comedies; and, though naturally of a gay genius, died of chagrin in the 52d year of his age. His works, consisting of comedies and travels, were printed at Rouen, in 5 vols 12mo, 1732.

REGNIER (Mathurin), the first French poet who succeeded in satire, was born at Chartres in 1573. He was brought up to the church, a place for which his debaucheries rendered him very unsuitable; and these by his own confession were so excessive, that at 30 he had all

all the infirmities of age. Yet he obtained a canonry in the church of Chartres, with other benefices; and died in 1613. There is a neat Elzevir edition of his works, 12mo. 1652, Leyden; but the moſt elegant is that with notes by M. Broſſette, 4to, 1729, London.

Regnier des Marets (Seraphin), a French poet, born at Paris in 1632. He diſtinguiſhed himſelf early by his poetical talents, and in 1684 was made perpetual ſecretary to the French academy on the death of Mezeray: it was he who drew up all thoſe papers in the name of the academy againſt Furetiere: the king gave him the priory of Grammont, and he had alſo an abbey. He died in 1713, and his works are, French, Italian, Spaniſh, and Latin poems, 2 vols; a French grammar; and an Italian tranſlation of Anacreon's odes, with ſome other tranſlations.

REGNUM (anc. geog.), a town of the Regni, a people in Britain, next the Cantii, now Surry, Suſſex, and the coaſt of Hampſhire, (Camden); a town ſituated, by the Itinerary numbers, on the confines of the Belgæ, in a place now called *Ringwood*, in Hampſhire, on the rivulet Avon, running down from Saliſbury, and about ten miles or more diſtant from the ſea.

REGRATOR, ſignifies him who buys and ſells any wares or victuals in the *ſame* market or fair: and regrators are particularly deſcribed to be thoſe who buy, or get into their hands, in fairs or markets, any grain, fiſh, butter, cheeſe, ſheep, lambs, calves, ſwine, pigs, geeſe, capons, hens, chickens, pigeons, conies, or other dead victuals whatſoever, brought to a fair or market to be ſold there, and do ſell the ſame again in the ſame fair, market, or place, or in ſome other within four miles thereof.

Regrating is a kind of *huckſtry*, by which victuals are made dearer; for every ſeller will gain ſomething, which muſt of conſequence enhance the price. And, in ancient times, both the engroſſer and regrator were comprehended under the word *foreſtaller*. Regrators are puniſhable by loſs and forfeiture of goods, and impriſonment, according to the firſt, ſecond, or third offence, &c.

REGENSBERG, a handſome, though ſmall town of Swiſſerland, in the canton of Zurich, and capital of a bailiwick of the ſame name, with a ſtrong caſtle; ſeated on a hill, which is part of Mount Jura. There is a well ſunk through a rock, 36 fathoms deep.

REGULAR, denotes any thing that is agreeable to the rules of art: thus we ſay, a regular building, verb, &c.

A regular figure, in geometry, is one whoſe ſides, and conſequently angles, are equal; and a regular figure with three or four ſides is commonly termed an *equilateral triangle* or *ſquare*, as all others with more ſides are called *regular polygons*.

Regular, in a monaſtery, a perſon who has taken the vows; becauſe he is bound to obſerve the rules of the order he has embraced.

REGULATION, a rule or order preſcribed by a ſuperior, for the proper management of ſome affair.

REGULATOR *of a* Watch, the ſmall ſpring belonging to the balance; ſerving to adjuſt its motions, and make it go faſter or ſlower. See Watch.

REGULBIUM, or Regulvium, (Notitia Imperii); mentioned nowhere elſe more early: a town of the Cantii, in Britain. Now Reculver, a village on the coaſt, near the iſland Thanet, towards the Thames, to the north of Canterbury, (Camden).

Regulus.

REGULUS (M. Attilius), a conſul during the firſt Punic war. He reduced Brundiſium, and in his ſecond conſulſhip he took 64 and ſunk 30 galleys of the Carthaginian fleet, on the coaſts of Sicily. Afterwards he landed in Africa; and ſo rapid was his ſucceſs, that in a ſhort time he made himſelf maſter of about 200 places of conſequence on the coaſt. The Carthaginians ſued for peace, but the conqueror refuſed to grant it; and ſoon after he was defeated in a battle by Xanthippus, and 30,000 of his men were left on the field of battle, and 15,000 taken priſoners. Regulus was in the number of the captives, and he was carried in triumph to Carthage. He was ſent by the enemy to Rome, to propoſe an accommodation and an exchange of priſoners; and if his commiſſion was unſucceſsful, he was bound by the moſt ſolemn oaths to return to Carthage without delay. When he came to Rome, Regulus diſſuaded his countrymen from accepting the terms which the enemy propoſed; and when his opinion had had due influence on the ſenate, Regulus retired to Carthage agreeable to his engagements. The Carthaginians were told that their offers of peace had been rejected at Rome by the means of Regulus; and therefore they prepared to puniſh him with the greateſt ſeverity. His eye-brows were cut, and he was expoſed for ſome days to the exceſſive heat of the meridian ſun, and afterwards confined in a barrel, whoſe ſides were everywhere filled with large iron ſpikes, till he died in the greateſt agonies. His ſufferings were heard of at Rome; and the ſenate permitted his widow to inflict whatever puniſhment ſhe pleaſed on ſome of the moſt illuſtrious captives of Carthage which were in their hands. She confined them alſo in preſſes filled with ſharp iron points; and was ſo exquiſite in her cruelty, that the ſenate interfered, and ſtopped the barbarity of her puniſhment. Regulus died about 251 years before Chriſt.—Memmius, a Roman, made governor of Greece by Caligula. While Regulus was in his province, the emperor wiſhed to bring the celebrated ſtatue of Jupiter Olympius by Phidias to Rome, but this was ſupernaturally prevented; and according to ancient authors, the ſhip which was to convey it was deſtroyed by lightning, and the workmen who attempted to remove the ſtatue were terrified away by ſudden noiſes.—A man who condemned Sejanus.—Roſcius, a man who held the conſulſhip but for one day, in the reign of Vitellius.

Regulus, in chemiſtry, an imperfect metallic ſubſtance that falls to the bottom of the crucible, in the melting of ores or impure metallic ſubſtances. It is the fineſt or pureſt part of the metal; and, according to the alchemiſts, is denominated *regulus*, or *little king*, as being the firſt-born of the royal metallic blood. According to them, it is really a ſon, but not a perfect man; *i. e.* not yet a perfect metal, for want of time and proper nourihment. To procure the regulus or mercurial parts of metals, &c. flux powders are commonly uſed; as nitre, tartar, &c. which purge the ſulphureous part adhering to the metal, by attracting and abſorbing it to themſelves.

Regulus of Antimony. See Chemistry, n° 1252—1257; and ſee *Index* there, at *Antimony*.

Regulus of Arſenic. See Chemistry, n° 1267, &c. and 1285—1294. The ancient proceſs for making regulus

gulus of arſenic conſiſted in mixing four parts of arſenic with two parts of black flux, one part of borax, and one part of filings of iron or of copper, and quickly fuſing the mixture in a crucible. After the operation is finiſhed, a regulus of arſenic will be found at the bottom of the crucible of a white livid colour, and of conſiderable folidity. The iron and copper employed in this proceſs are not intended, as in the operation for the martial regulus of antimony, to precipitate the arſenic, and to ſeparate it from ſulphur or any other ſubſtance; for the white arſenic is pure, and nothing is to be taken from it; but, on the contrary, the inflammable principle is to be added to reduce it to a regulus. The true uſe of theſe metals in the preſent operation is to unite with the regulus of arſenic, to give it more body, and to prevent its entire diſſipation in vapours. Hence the addition of iron, while it procures theſe advantages, has the inconveniency of altering the purity of the regulus: for the metallic ſubſtance obtained is a regulus of arſenic allayed with iron. It may, however, be purified from the iron by ſublimation in a cloſe veſſel; by which operation the reguliſed arſenical part, which is very volatile, is ſublimed to the top of the veſſel, and is ſeparated from the iron, which being of a fixed nature remains at the bottom. We are not, however, very certain, that in this kind of rectification the regulus of arſenic does not carry along with it a certain quantity of iron; for, in general, a volatile ſubſtance raiſes along with it, in ſublimation, a part of any fixed matter with which it happened to be united.

Mr Brandt propoſes another method, which we believe is preferable to that deſcribed. He directs that white arſenic ſhould be mixed with ſoap. Inſtead of the ſoap, olive-oil may be uſed, which has been found to ſucceed well. The mixture is to be put into a retort or glaſs matraſs, and to be diſtilled or ſublimed with fire, at firſt very moderate, and only ſufficient to raiſe the oil. As the oils, which are not volatile, cannot be diſtilled but by a heat ſufficient to burn and decompoſe them, the oil therefore which is mixed with the arſenic undergoes theſe alterations, and after having penetrated the arſenic thoroughly is reduced to a coal. When no more oily vapours riſe, we may then know that the oil is reduced to coal. Then the fire muſt be increaſed, and the metalliſed arſenic will be ſoon ſublimed to the upper part of the veſſel, in the inſide of which it will form a metallic cruſt. When no more ſublimes, the veſſel is to be broken, and the adhering cruſt of regulus of arſenic is to be ſeparated. The regulus obtained by this firſt operation is not generally perfect, or not entirely ſo, as a part of it is always overcharged with fuliginous matter, and another part has not enough of phlogiſton; which latter part adheres to the inner ſurface of the cruſt, and forms grey or brown cryſtals. This ſublimate muſt then be mixed with a leſs quantity of oil, and ſublimed a ſecond time like the firſt; and even, to obtain as good regulus as may be made, a third ſublimation in a cloſe veſſel, and without oil, is neceſſary. During this operation, the oil which riſes is more fetid than any other empyreumatic oil, and is almoſt inſupportable. This ſmell certainly proceeds from the arſenic; the ſmell of which is exceedingly ſtrong and diſagreeable when heated.

Regulus of arſenic made by the method we have deſcribed, and which we conſider as the only one which is pure, has all the properties of a ſemimetal. It has metallic gravity, opacity, and luſtre. Its colour is white and livid, it tarniſhes in the air, is very brittle, but much more volatile than any other ſemimetal. It eaſily loſes its inflammable principle, when ſublimed in veſſels into which the air has acceſs; the ſublimate having the appearance of grey flowers, which by repeated ſublimations become entirely white, and ſimilar to white cryſtalline arſenic. When regulus of arſenic is heated quickly and ſtrongly in open air, as under a muffle, it burns with a white or bluiſh flame, and diſſipates in a thick fume, which has a very fetid ſmell, like that of garlic.

Regulus of arſenic may be combined with acids and moſt metals. See ARSENIC, n° 17. We ſhall only farther obſerve here, that, according to Mr Brandt, in the Swediſh Memoirs, the regulus of arſenic cannot be united with mercury. Although the phenomena exhibited by white arſenic and regulus of arſenic in ſolutions and allays are probably the ſame, yet an accurate compariſon of theſe would deſerve notice, eſpecially if the regulus employed were well made; for ſome difference muſt proceed from the greater or leſs quantity of what in the old chemiſtry is called phlogiſton with which it is united. See CHEMISTRY, n° 1288, &c.

Regulus of Cobalt, is a ſemimetal lately diſcovered, and not yet perfectly well known. It receives its name from cobalt, becauſe it can only be extracted from the mineral properly ſo called. The proceſs by which this ſemimetal is obtained, is ſimilar to thoſe generally uſed for the extraction of metals from their ores. The cobalt muſt be thoroughly torrified, to deprive it of all the ſulphur and arſenic it contains; and the unmetallic earthy and ſtony matters muſt be ſeparated by waſhing. The cobalt thus prepared is then to be mixed with double or triple its quantity of black flux, and a little decrepitated ſea-ſalt; and muſt be fuſed either in a forge or in a hot furnace, for this ore is very difficult of fuſion. When the fuſion has been well made, we find upon breaking the crucible, after it has cooled, a metallic regulus covered with a ſcoria of a deep blue colour. The regulus is of a white metallic colour. The ſurface of its fracture is cloſe and ſmall-grained. The ſemimetal is hard, but brittle. When the fuſion has been well made, its ſurface appears to be carved with many convex threads, which croſs each other diverſely. As almoſt all cobalts contain alſo biſmuth, and even as much as of the regulus itſelf, this biſmuth is reduced by the ſame operation, and precipitated in the ſame manner, as the regulus of cobalt; for although theſe two metals are frequently mixed in the ſame mineral, that is, in cobalt, they are incapable of uniting together, and are always found diſtinct and ſeparate from one another when they are melted together. At the bottom of the crucible then we find both regulus of cobalt and biſmuth. The latter, having a greater ſpecific gravity, is found under the former. They may be ſeparated from each other by the blow of a hammer. Biſmuth may be eaſily diſtinguiſhed from the regulus of cobalt, not only from its ſituation in the crucible, but alſo by the large ſhining facets which appear in its fracture, and which are very different from the cloſe aſh-coloured grain of regulus of cobalt.

This ſemimetal is more difficult of fuſion than any other;

other; is less easily calcinable, and much less volatile. Its calx is grey, and more or less brown; and when fused with vitrifiable matters, it changes into a beautiful blue glass called *smalt*. This calx, then, is one of those which preserve always a part of their inflammable principle. It is soluble in acids, as the regulus is. This regulus is soluble in vitriolic, marine, nitrous acids, and in aqua-regia, to all which it communicates colours. The solution in vitriolic acid is reddish; the solution in marine acid is of a fine bluish-green when hot, and its colour is almost totally effaced when cold, but is easily recoverable by heating it, without being obliged to uncork the bottle containing it. This solution of the calx of regulus of cobalt is the basis of the sympathetic ink; for without marine acid this ink cannot be made. All the solutions of regulus of cobalt may be precipitated by alkalis; and these precipitates are blue, which colour they retain when vitrified with the strongest fire.

Not only sympathetic ink, but also regulus of cobalt, may be made from the zafire commonly sold; which is nothing else than the calx of regulus of cobalt mixed with more or less pulverised flints. For this purpose we must separate as well as we can the powder of flints from it, by washing, as M. Beaumé does, and then reduce it with black flux and sea-salt. Regulus of cobalt seems incapable of uniting with sulphur: but it easily unites with liver of sulphur; and the union it forms is so intimate, that M. Beaumé could not separate these two substances otherwise than by precipitation with an acid.

Many curious and interesting remarks are still to be discovered concerning this singular semimetal, and we may hope to receive further information from the endeavours of chemists who have undertaken the examination of it. M. Beaumé particularly has made considerable experiments on this subject, part of which he communicates to the public in his Course of Chemistry, and from whom we have borrowed the most of the above observations. See CHEMISTRY, n° 1294, &c.

REHEARSAL, in music and the drama, an essay or experiment of some composition, generally made in private, previous to its representation or performance in public, in order to render the actors and performers more perfect in their parts.

REICHENBERG, in Bohemia, 95 miles west of Prague, 205 north-west of Vienna, N. Lat. 50. 2. E. Long. 12. 25. is only remarkable as the place where the Prussian army defeated the Austrians on the 21st of April 1757. The Austrian army, commanded by Count Konigseck, was posted near Reichenberg, and was attacked by the Prussians under the command of the prince of Brunswick Bevern. The Prussians were 20,000, and the Austrians 28,000: the action began at half after six in the morning, when the Prussian lines were formed, and attacked the Austrian cavalry, which was ranged in three lines of 30 squadrons, and their two wings sustained by the infantry, which was posted among felled trees and intrenchments. The Austrians had a village on their right, and a wood on their left, where they were intrenched. The Prussian dragoons and grenadiers cleared the intrenchment and wood, and entirely routed the Austrian cavalry; at the same time, the redoubts that covered Reichenberg were taken by General Lestewitz; and the Austrians were entirely defeated. The Prussians had seven officers and 100 men killed; 14 officers and 150 men wounded. The Austrians had 1000 men killed and wounded; 20 of their officers and 400 men taken prisoners. The action ended at eleven.

REIN-DEER, or *Tarandus*. See CERVUS, n° 4.

REINS, in anatomy, the same with KIDNEYS. See ANATOMY, n° 101.

REINS *of a Bridle*, are two long slips of leather, fastened on each side of a curb or snaffle, which the rider holds in his hand, to keep the horse in subjection.

There is also what is called *false reins*; which is a lath of leather, passed sometimes through the arch of the banquet, to bend the horse's neck.

REJOINDER, in law, is the defendant's answer to the plaintiff's replication or reply. Thus, in the court of chancery, the defendant puts in an answer to the plaintiff's bill, which is sometimes also called an *exception*; the plaintiff's answer to that is called a *replication*, and the defendant's answer to that a *rejoindre*.

RELAND (Adrian), an eminent Orientalist, born at Ryp, in North Holland, in 1676. During three years study under Surenhusius, he made an uncommon progress in the Hebrew, Syriac, Chaldee, and Arabic languages; and these languages were always his favourite study. In 1701, he was, by the recommendation of King William, appointed professor of Oriental languages and ecclesiastical antiquities in the university of Utrecht; and died of the small-pox in 1718. He was distinguished by his modesty, humanity, and learning; and carried on a correspondence with the most eminent scholars of his time. His principal works are, 1. An excellent description of Palestine. 2. Five dissertations on the Medals of the ancient Hebrews, and several other dissertations on different subjects. 3. An Introduction to the Hebrew Grammar. 4. The Antiquities of the ancient Hebrews. 5. On the Mahometan Religion. These works are all written in Latin.

RELATION, the mutual respect of two things, or what each is with regard to the other. See METAPHYSICS, n° 93, &c. and 128, &c.

RELATION, in geometry. See RATIO.

RELATION, is also used for analogy. See ANALOGY, and METAPHYSICS, p. 529, &c.

RELATIVE, something relating to or respecting another.

RELATIVE, in music. See MODE.

RELATIVE-Terms, in logic, are words which imply relation: such are master and servant, husband and wife, &c.

In grammar, relative words are those which answer to some other word foregoing, called the *antecedent*; such are the relative pronouns *qui*, *quæ*, *quod*, &c. and in English, *who*, *whom*, *which*, &c. The word answering to these relatives is often understood, as, "I know whom you mean," for "I know the person whom you mean."

RELAXATION, in medicine, the act of loosening or slackening; or the looseness or slackness of the fibres, nerves, muscles, &c.

RELAY, a supply of horses, placed on the road, and appointed to be ready for a traveller to change, in order to make the greater expedition.

RELEASE, in law, is a discharge or conveyance of a man's right in lands or tenements, to another that hath

Release || Relics.

hath some former estate in possession. The words generally used therein are "remised, released, and for ever quit claimed." And these releases may enure, either, 1. By way of *enlarging an estate*, or *enlarger l'estate*: as, if there be tenant for life or years, remainder to another in fee, and he in remainder releases all his right to the particular tenant and his heirs, this gives him the estate in fee. But in this case the releasee must be in *possession* of some estate, for the release to work upon; for if there be lessee for years, and, before he enters and is in possession, the lessor releases to him all his right in the reversion, such release is void for want of possession in the releasee. 2. By way of *passing an estate*, or *mutter l'estate*: as, when one of two coparceners releases all his right to the other, this passeth the fee-simple of the whole. And, in both these cases there must be a privity of estate between the releasor and releasee: that is, one of their estates must be so related to the other, as to make but one and the same estate in law. 3. By way of *taking a right*, or *mutter le droit*: as if a man be disseised, and releaseth to his disseisor all his right; hereby the disseisor acquires a new right, which changes the quality of his estate, and renders that lawful which before was tortious. 4. By way of *extinguishment*: as if my tenant for life makes a lease to A for life, remainder to B and his heirs, and I release to A; this extinguishes my right to the reversion, and shall enure to the advantage of B's remainder as well as of A's particular estate. 5. By way of *entry and feoffment*: as if there be two joint disseisors, and the disseisee releases to one of them, he shall be sole seised, and shall keep out his former companion; which is the same in effect as if the disseisee had entered, and thereby put an end to the disseisin, and afterwards had enfeoffed one of the disseisors in fee. And hereupon we may observe, that when a man has in himself the possession of lands, he must at the common law convey the freehold by feoffment and livery; which makes a notoriety in the country: but if a man has only a right or a future interest, he may convey that right or interest by a mere release to him that is in possession of the land: for the occupancy of the releasee is a matter of sufficient notoriety already.

RELEVANCY, in Scots law. See LAW, N° clxxxvi. 48.

RELICS, in the Romish church, the remains of the bodies or clothes of saints or martyrs, and the instruments by which they were put to death, devoutly preserved, in honour to their memory; kissed, revered, and carried in procession.

The respect which was justly due to the martyrs and teachers of the Christian faith, in a few ages increased almost to adoration; and at length adoration was really paid both to departed saints and to relics of holy men or holy things. The abuses of the church of Rome, with respect to relics, are very flagrant and notorious. For such was the rage for them at one time, that, as F. Mabillon a Benedictine justly complains, the altars were loaded with suspected relics; numerous spurious ones being everywhere offered to the piety and devotion of the faithful. He adds, too, that bones are often consecrated, which, so far from belonging to saints, probably do not belong to Christians. From the catacombs numerous relics have been taken, and yet it is not known who were the persons interred therein. In the 11th century, relics were tried by fire, and those which did not consume were reckoned genuine, and the rest not. Relics were, and still are, preserved on the altars whereon mass is celebrated: a square hole being made in the middle of the altar, big enough to receive the hand, and herein is the relic deposited, being first wrapped in red silk, and inclosed in a leaden box.

The Romanists plead antiquity in behalf of relics: For the Manichees, out of hatred to the flesh, which they considered as an evil principle, refused to honour the relics of saints; which is reckoned a kind of proof that the Catholics did it in the first ages.

We know, indeed, that the touching of linen cloths on relics, from an opinion of some extraordinary virtue derived therefrom, was as ancient as the first ages, there being a hole made in the coffins of the 40 martyrs at Constantinople expressly for this purpose. The honouring the relics of saints, on which the church of Rome afterwards founded her superstitious and lucrative use of them, as objects of devotion, as a kind of charms or amulets, and as instruments of pretended miracles, appears to have originated in a very ancient custom, that prevailed among Christians, of assembling at the cemeteries or burying-places of the martyrs, for the purpose of commemorating them, and of performing divine worship. When the profession of Christianity obtained the protection of the civil government, under Constantine the Great, stately churches were erected over their sepulchres, and their names and memories were treated with every possible token of affection and respect. This reverence, however, gradually exceeded all reasonable bounds; and those prayers and religious services were thought to have a peculiar sanctity and virtue, which were performed over their tombs. Hence the practice which afterwards obtained, of depositing relics of saints and martyrs under the altars in all churches. This practice was then thought of such importance, that St Ambrose would not consecrate a church because it had no relics; and the council of Constantinople in Trullo ordained, that those altars should be demolished under which there were found no relics. The rage of procuring relics for this and other purposes of a similar nature, became so excessive, that in 386 the emperor Theodosius the Great was obliged to pass a law, forbidding the people to dig up the bodies of the martyrs, and to traffic in their relics.

Such was the origin of that respect for sacred relics, which afterwards was perverted into a formal worship of them, and became the occasion of innumerable processions, pilgrimages, and miracles, from which the church of Rome hath derived incredible advantage.—In the end of the ninth century, it was not sufficient to reverence departed saints, and to confide in their intercessions and succours, to clothe them with an imaginary power of healing diseases, working miracles, and delivering from all sorts of calamities and dangers; their bones, their clothes, the apparel and furniture they had possessed during their lives, the very ground which they had touched, or in which their putrified carcases were laid, were treated with a stupid veneration, and supposed to retain the marvellous virtue of healing all disorders both of body and mind, and of defending such as possessed them against all the assaults and devices of the devil.

vil. The consequence of all this was, that every one was eager to provide himself with these salutary remedies; consequently, great numbers undertook fatiguing and perilous voyages, and subjected themselves to all sorts of hardships; while others made use of this delusion to accumulate their riches, and to impose upon the miserable multitude by the most impious and shocking inventions. As the demand for relics was prodigious and universal, the clergy employed the utmost dexterity to satisfy all demands, and were far from being nice in the methods they used for that end. The bodies of the saints were sought by fasting and prayer, instituted by the priest in order to obtain a divine answer and an infallible direction, and this pretended direction never failed to accomplish their desires; the holy carcase was always found, and that always in consequence, as they impiously gave out, of the suggestion and inspiration of God himself. Each discovery of this kind was attended with excessive demonstrations of joy, and animated the zeal of these devout seekers to enrich the church still more and more with this new kind of treasure. Many travelled with this view into the Eastern provinces, and frequented the places which Christ and his disciples had honoured with their presence, that, with the bones and other sacred remains of the first heralds of the gospel, they might comfort dejected minds, calm trembling consciences, save sinking states, and defend their inhabitants from all sorts of calamities. Nor did these pious travellers return home empty; the craft, dexterity, and knavery of the Greeks, found a rich prey in the stupid credulity of the Latin relic-hunters, and made a profitable commerce of this new devotion. The latter paid considerable sums for legs and arms, skulls and jaw-bones (several of which were Pagan, and some not human), and other things that were supposed to have belonged to the primitive worthies of the Christian church; and thus the Latin churches came to the possession of those celebrated relics of St Mark, St James, St Bartholomew, Cyprian, Pantaleon, and others, which they show at this day with so much ostentation. But there were many who, unable to procure for themselves these spiritual treasures by voyages and prayers, had recourse to violence and theft; for all sorts of means, and all sorts of attempts in a cause of this nature, were considered, when successful, as pious and acceptable to the Supreme Being.—Besides the arguments from antiquity to which the Papists refer, in vindication of their worship of relics, of which the reader may form some judgment from this article, Bellarmine appeals to Scripture in support of it, and cites the following passages, viz. Exod. xiii. 19.; Deut. xxxiv. 6.; 2 Kings xiii. 21.; 2 Kings xxiii. 16, 17, 18.; Isaiah xi. 10.; Matthew xi. 20, 21, 22.; Acts v. 12–15.; Acts xix. 11, 12. See Popery.

The Roman Catholics in Great Britain do not acknowledge any worship to be due to relics, but merely a high veneration and respect, by which means they think they honour God, who, they say, has often wrought very extraordinary miracles by them. But, however proper this veneration and respect may be, its abuse has been so great and so general, as fully to warrant the rejection of them altogether.

Relics are forbidden to be used or brought into England by several statutes; and justices of peace are empowered to search houses for popish books and relics, which, when found, are to be defaced and burnt, &c. 3 Jac. I. cap. 26.

RELICT, in law, the same with Widow.

RELIEF (*Relevamen*; but, in Domesday, *Relevatio*, *Relevium*), signifies a certain sum of money, which the tenant, holding by knight's service, grand serjeanty, or other tenure, (for which homage or legal service is due), and being at full age at the death of his ancestor, paid unto his lord at his entrance. See Primer.

Though reliefs had their original while feuds were only life-estates, yet they continued after feuds became hereditary; and were therefore looked upon, very justly, as one of the greatest grievances of tenure: especially when, at the first, they were merely arbitrary and at the will of the lord; so that, if he pleased to demand an exorbitant relief, it was in effect to disinherit the heir. The English ill brooked this consequence of their new-adopted policy; and therefore William the Conqueror by his laws *ascertained* the relief, by directing (in imitation of the Danish heriots), that a certain quantity of arms, and habiliments of war, should be paid by the earls, barons, and vavasours respectively; and, if the latter had no arms, they should pay 100s. William Rufus broke through this composition, and again demanded arbitrary uncertain reliefs, as due by the feodal laws; thereby in effect obliging every heir to new-purchase or *redeem* his land: but his brother Henry I. by the charter before-mentioned, restored his father's law; and ordained, that the relief to be paid should be according to the law so established, and not an arbitrary redemption.—But afterwards, when, by an ordinance in 27 Hen. II. called the *assise of arms*, it was provided, that every man's armour should descend to his heir, for defence of the realm, and it thereby became impracticable to pay these acknowledgments in arms according to the laws of the Conqueror, the composition was universally accepted of 100s. for every knight's fee, as we find it ever after established. But it must be remembered, that this relief was only then payable, if the heir at the death of his ancestor had attained his full age of 21 years.

To RELIEVE *the* Guard, is to put fresh men upon guard, which is generally every 24 hours.

To Relieve *the Trenches*, is to relieve the guard of the trenches, by appointing those for that duty who have been there before.

To Relieve *the Sentries*, is to put fresh men upon that duty from the guard, which is generally done every two hours, by a corporal who attends the relief, to see that the proper orders are delivered to the soldier who relieves.

RELIEVO, or Relief, in sculpture, &c. is the projecture or standing out of a figure which arises prominent from the ground or plane on which it is formed; whether that figure be cut with the chissel, moulded, or cast.

There are three kinds or degrees of relievo, viz. alto, basso, and demi-relievo. The alto-relievo, called also *haut-relief*, or *high-relievo*, is when the figure is formed after nature, and projects as much as the life. Basso-relievo, bass-relief, or low-relievo, is when the work is raised a little from the ground, as in medals, and the frontispieces of buildings; and particularly in the histo-

Relievo, Relief.

vies, festoons, foliages, and other ornaments of friezes. Demi relievo is when one half of the figure rises from the place. When, in a basso-relievo, there are parts that stand clear out, detached from the rest, the work is called a *[illegible]*.

In architecture, the relievo or projecture of the ornaments ought always to be proportioned to the magnitude of the building it adorns, and to the distance at which it is to be viewed.

Relievo, or *Relief*, in painting, is the degree of boldness with which the figures seem, at a due distance, to stand out from the ground of the painting.

The relievo depends much upon the depth of the shadow, and the strength of the light; or on the height of the different colours, bordering on one another; and particularly on the difference of the colour of the figure from that of the ground: thus, when the light is so disposed as to make the nearest parts of the figure advance, and is well diffused on the masses, yet insensibly diminishing, and terminating in a large spacious shadow, brought off insensibly, the relievo is said to be bold, and the clair obscure well understood.

Religion defined;

RELIGION (Religio), is a Latin word derived, according to Cicero, from *relegere*, "to re-consider;" but according to Servius and most modern grammarians, from *religare*, "to bind fast." The reason assigned by the Roman orator for deducing *religio* from *relege*, is in these words, "qui autem omnia, quæ ad cultum deorum pertinerent, diligenter retracterent, et tanquam relegerent, iisdem dicti *religiosi* ex relegendo." The reason given by Servius for his derivation of the word is, "quod mentem religio religat." If the Ciceronian etymology be the true one, the word *religion* will denote the diligent study of whatever pertains to the worship of the gods; but according to the other derivation, which we are inclined to prefer, it denotes that obligation which we feel on our minds from the relation in which we stand to some superior power. In either case, the import of the word *religion* is different from that of *theology*, as the former signifies a number of practical duties, and the latter a system of speculative truths. *Theology* is therefore the foundation of *religion*, or the science from which it springs; for no man can study what pertains to the worship of superior powers till he believe that such powers exist, or feel any obligation on his mind from a relation of which he knows nothing.

And distinguished from theology,

This idea of religion, as distinguished from theology, comprehends the duties not only of those more refined and complicated systems of theism or polytheism which have prevailed among civilized and enlightened nations, such as the polytheism of the Greeks and Romans, and the theism of the Jews, the Mahometans, and the Christians; it comprehends every sentiment of obligation which human beings have ever conceived themselves under to superior powers, as well as all the forms of worship which have ever been practised through the world, however fantastic, immoral, or absurd.

It is a important trait of the human

When we turn our eyes to this feature of the human character, we find it peculiarly interesting. Mankind are distinguished from the brutal tribes, and elevated to an higher rank, by the rational and moral faculties with which they are endowed; but they are still more widely distinguished from the inferior creation, and more highly exalted above them, by being made capable of religious notions and religious sentiments. The slightest knowledge of history is sufficient to inform us, that religion has ever had a powerful influence in moulding the sentiments and manners of men. It has sometimes dignified, and sometimes degraded, the human character. In one region or age it has been favourable to civilization and refinement; in another, it has occasionally cramped the genius, depraved the morals, and deformed the manners of men. The varieties of religion are innumerable; and the members of every distinct sect must view all who differ from them as more or less mistaken with respect to the most important concerns of man. Religion seems to be congenial to the heart of man; for wherever human society subsists, there we are certain of finding religious opinions and sentiments.

Three questions concerning religion.

It must, therefore, be an important subject of speculation to the man and the philosopher to consider the origin of religion; to inquire, How far religion in general has a tendency to promote or to injure the order and happiness of society? and, above all, to examine, What particular religion is best calculated to produce an happy influence on human life?

We shall endeavour to give a satisfactory answer to each of these questions, reserving to the article Theology the consideration of the dogmas of that particular religion which, from our present inquiries, shall appear to be true, and to have the happiest influence on human life and manners.

Of the source or foundation of religion

I. The foundation of all religion rests on the belief of the existence of one or more superior beings, who govern the world, and upon whom the happiness or misery of mankind ultimately depends. Of this belief, as it may be said to have been universal, there seem to be but three sources that can be conceived. Either the image of Deity must be stamped on the mind of every human being, the savage as well as the sage; or the founders of societies, and other eminent persons, tracing by the efforts of their own reason visible effects to invisible causes, must have discovered the existence of superior powers, and communicated the discovery to their associates and followers; or, lastly, the universal belief in such powers must have been derived by tradition from a primæval revelation, communicated to the progenitors of the human race.

It does not arise from an original stamp on the mind;

One or other of these hypotheses must be true, because a fourth cannot be framed. But we have elsewhere (Polytheism, n° 2.) examined the reasoning which has been employed to establish the first, and shewn that it proceeds upon false notions of human nature. We should likewise pronounce it contrary to fact, could we believe, on the authority of some of its patrons, who are not ashamed to contradict one another, that the Kamtschatkans, and other tribes, in the lowest state of reasoning and morals, have no ideas whatever of Deity. We proceed, therefore, to consider the second hypothesis, which is much more plausible, and will bear a stricter scrutiny.

Nor from reasoning;

That the existence and many of the attributes of the Deity are capable of rigid demonstration, is a truth which cannot be controverted either by the philosopher or the Christian; for "the invisible things of Him from the creation of the world are clearly seen, being understood by the things that are made, even His eternal power and Godhead," (see Metaphysics, Part III. chap.

chap. vi. and THEOLOGY, n° 8, 9.) But surely it would be rash to infer, either that every truth for which, when it is known, the ingenuity of man can frame a demonstration, is therefore *discoverable* by human sagacity, or that all the truths which have been discovered by a *Newton* or a *Locke* might therefore have been discovered by untaught barbarians. In mathematical science, there are few demonstrations of easier comprehension than that given by Euclid, of the theorem of which Pythagoras is the reputed author; yet no man ever dreamed that a boy capable of being made to understand that theorem, must therefore have sagacity equal to the sage of Samos; or that such a boy, having never heard of the relation between the hypothenuse and other two sides of a right angled triangle, would be likely to *discover* that the square of the former is precisely equal to the sum of the squares of the latter. Just so it seems to be with the fundamental truths of theology. There can hardly be conceived a demonstration less intricate, or more conclusive, than that which the man of science employs to prove the existence of at least one God, possessed of boundless power and perfect wisdom, And could we suppose that the human race had remained without any knowledge of God in the world, till certain lucky individuals had by some means or other made themselves masters of the rules of logic, and the philosophy of causes, there can be no doubt but that these individuals might have discovered the existence of superior powers, and communicated their discovery to their associates and followers. But this supposition cannot be admitted, as it is contradicted by the evidence of all history. No nation or tribe has ever been found, in which there is not reason to believe that some notions were entertained of superior and invisible powers, upon which depends the happiness or misery of mankind: and from the most authentic records of antiquity, it is apparent that very pure principles of theism prevailed in some nations long before the rules of logic, and the philosophy of causes, were thought of by any people under heaven.

The supposition before us is inadmissible upon other accounts. Some modern philosophers have fancied that the original progenitors of mankind were left entirely to themselves from the moment of their creation; that they wandered about for ages without the use of speech and in the lowest state of savagism; but that they gradually civilized themselves, and at last stumbled upon the contrivance of making articulate sounds significant of ideas, which was followed by the invention of arts and sciences, with all the blessings of religion and legislation in their train. But this is a wild reverie, inconsistent with the phenomena of human nature.

It is a well known fact, that a man blind from his birth, and suddenly made to see, would not by means of his newly acquired sense discern either the magnitude or figure or distance of objects, but would conceive every thing which communicated to him visible sensations as inseparably united to his eye or his mind (See METAPHYSICS, n 49—53). How long his sense of sight would remain in such an imperfect state, we cannot positively say; but from attending to the visible sensations of infants, we are confident that weeks, if not months, elapse before they can distinguish one thing from another. We have indeed been told, that Chesselden's famous patient, though he was at first in the state which we have described, learned to distinguish objects by sight in the course of a few hours, or at the most of a few days; but admitting this to a certain extent to be true, it may easily be accounted for. The disease called a *cataract* seldom occasions total blindness; but let us suppose the eyes of this man to have been so completely dimmed as to communicate no sensation whatever upon being exposed to the rays of light; still we must remember that he had long possessed the power of loco-motion and all his other senses in perfection. He was therefore well acquainted with the real, *i. e.* the tangible magnitude, figure, and distance of many objects; and having been often told that the things which he touched would, upon his acquisition of sight, communicate new sensations to his mind, differing from each other according to the distance, figure, and magnitude of the objects by which they were occasioned, he would soon learn to infer the one from the other, and to distinguish near objects by means of his sight.

The progenitors of the human race, however, if left to themselves from the moment of their creation, had not the same advantages. When they first opened their eyes, they had neither moved, nor handled, nor heard, nor smelled, nor tasted, nor had a single idea or notion treasured up in their memories; but were in all these respects in the state of new-born infants. Now we should be glad to be informed by those sages who have conducted mankind through many generations in which they were *mutum et turpe pecus* to that happy period when they invented language, how the first men were taught to distinguish objects by their sense of sight, and how they contrived to *live* till this most necessary faculty was acquired? It does not appear that men are like brutes, provided with a number of instincts which guide them blindfold and without experience to whatever is necessary for their own preservation (see INSTINCT): On the contrary, all voyagers tell us that, in strange and uninhabited countries, they dare not venture to taste unknown fruits unless they perceive that these fruits are eaten by the fowls of the air. But without the aid of instinct, or of some other guide equally to be depended upon, it is not in our power to conceive how men dropt from the hands of their Creator, and left from that instant wholly to themselves, could move a single step without the most imminent danger, or even stretch out their hands to lay hold of that food which we may suppose to have been placed within their reach. They could not, for many days, distinguish a precipice from a plane, a rock from a pit, or a river from the meadows through which it rolled. And in such circumstances, how could they possibly exist, till their sense of sight had acquired such perfection as to be a sufficient guide to all their necessary motions? Can any consistent theist suppose that the God whose goodness is so conspicuously displayed in all his works, would leave his noblest creature on earth, a creature for whose comfort alone many other creatures seem to have been formed, in a situation so forlorn as this, where his immediate destruction appears to be inevitable? No! This supposition cannot be formed, because mankind still exist.

Will it then be said, that when God formed the first men, he not only gave them organs of sensation, and souls capable of arriving by discipline at the exercise of reason, but that he also imprinted upon their minds adequate

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2 But from original revelation.

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adequate ideas and notions of every object in which they were interested, brought all their organs, external and internal, at once to their utmost possible state of perfection; taught them instantaneously the laws of reasoning; and, in one word, stored their minds with every branch of useful knowledge? This is indeed our own opinion; and it is perfectly agreeable to what we are taught by the Hebrew lawgiver. When God had formed Adam and Eve, Moses does not say that he left them to acquire by slow degrees the use of their senses and reasoning powers, and to distinguish as they could fruits that were salutary from those that were poisonous. No: he placed them in a garden where every tree but one bore fruit fit for food; he warned them particularly against the fruit of that tree; he brought before them the various animals which roamed through the garden; he arranged these animals into their proper genera and species; and by teaching Adam to give them names, he communicated to the first pair the elements of language. This condescension appears in every respect worthy of perfect benevolence; and indeed without it the helpless man and woman could not have lived one whole week. But it cannot be supposed, that amidst so much useful instruction the gracious Creator would neglect to communicate to his rational creatures the knowledge of himself; to inform them of their own origin, and the relation in which they stood to him; and to state in the plainest terms the duties incumbent on them in return for so much goodness.

9 This opinion agreeable to the writings of Moses.

10 The mode of communication not certainly known.

In what manner all this knowledge was communicated, cannot be certainly known. It may have been in either of the following ways conceivable by us, or in others of which we can form no conception. God may have miraculously stored the minds of the first pair with adequate ideas and notions of sensible and intellectual objects; and then by an internal operation of his own Spirit have enabled them to exert at once their rational faculties so as to discover his existence and attributes, together with the relation in which as creatures they stood to him their Almighty Creator. Or, after rendering them capable of distinguishing objects by means of their senses, of comparing their ideas, and understanding a language, he may have exhibited himself under some sensible emblem, and conducted them by degrees from one branch of knowledge to another, as a schoolmaster conducts his pupils, till they were sufficiently acquainted with every thing relating to their own happiness and duty as rational, moral, and religious, creatures. In determining the question before us, it is of no importance whether infinite wisdom adopted either of these methods, or some other different from them, both which we cannot conceive. The ordinary process in which men acquire knowledge is, by the laws of their nature, extremely tedious. They cannot reason before their minds be stored with ideas and notions; and they cannot acquire these but through the medium of their senses long exercised on external objects.

11 Whether internal or external, was equally a revelation.

The progenitors of the human race, left to inform themselves by this process, must have inevitably perished before they had acquired one distinct notion; and it is the same thing with respect to the origin of religion, whether God preserved them from destruction by an *internal* or *external* revelation. If he stored their minds at once with the rudiments of all useful knowledge, and rendered them capable of exerting their rational faculties, so as, by tracing effects to their causes, to discover his being and attributes, he *revealed* himself to them as certainly as he did afterwards to Moses, when to him he condescended to speak face to face.

12 Such a revelation might naturally be handed down to posterity.

If this reasoning be admitted as fair and conclusive, and we apprehend that the principles on which it proceeds cannot be considered as ill-founded, we have advanced so far as to prove that mankind must have been originally enlightened by a revelation. But it is scarce necessary to observe, that this revelation must have been handed down through succeeding generations. It could not fail to reach the era of the deluge. It is not absurd to suppose, that he who spake from heaven to Adam, spake also to Noah. And both the revelation which had been handed down to the postdeluvian patriarch by tradition, and that which was communicated immediately to himself, would be by him made known to his descendants. Thus it appears almost impossible that some part of the religious sentiments of mankind should not have been derived from revelation; and that not of the religious sentiments of one particular family or tribe, but of almost all the nations of the earth.

13 The authority of the Jewish and Christian scriptures, &c.

This conclusion, which we have deduced by fair reasoning from the benevolence of God and the nature of man, is confirmed by the authority of the Jewish and Christian Scriptures, which are entitled to more implicit credit than all the other records of ancient history.

When we review the internal and external evidence of the authenticity of these sacred books, we cannot for a moment hesitate to receive them as the genuine *word of God*. If we examine their internal character, they everywhere appear to be indeed the voice of Heaven. The creation of the world—the manner in which this globe was first peopled—the deluge which swept away its inhabitants—the succeeding views of the state of mankind in the next ages after the deluge—the calling of Abraham—the legislation of Moses—the whole series of events which befel the Jewish nation—the prophecies—the appearance of Jesus Christ, and the promulgation of his gospel, as explained to us in the Scriptures—form one series, which is, in the highest degree, illustrative of the power, wisdom, and goodness of the Supreme Being.

While it must be allowed that the human mind is ever prone to debase the sublime principles of true religion by enthusiasm and superstition, reason and candour will not for a moment hesitate to acknowledge, that the whole system of revelation represents the Supreme Being in the most sublime and amiable light: that, in it, religion appears essentially connected with morality: that the legislative code of Moses was such as no legislator ever formed and established among a people equally rude and uncultivated: that the manners and morals of the Jews, vicious and savage as they may in some instances appear, yet merit a much higher character than those either of their neighbours, or of almost any other nation, whose circumstances and character were in other respects similar to theirs: that there is an infinite difference between the Scripture prophecies and the oracles and predictions which prevailed among heathen nations: and that the miracles recorded in those writings which we esteem sacred were attended with circumstances which entitle them to be ranked in a very different

different clafs from thofe which enthufiafm and impofture have fabricated among other nations. See MIRACLE and PROPHECY.

But as the evidence of the divine origin of the primæval religion refts particularly on the authority of the firft five books of the Old Teftament, it may be thought incumbent on us to fupport our reafoning on this fubject, by proving, that the author of thofe books was indeed infpired by God. This we fhall endeavour to do by one decifive argument; for the nature of the article, and the limits prefcribed us, admit not of our entering into a minute detail of all that has been written on the divine legation of Mofes.

If the miracles recorded in the book of Exodus, and the other writings of the Hebrew lawgiver, were really performed; if the firft-born of the Egyptians were all cut off in one night, as is there related; and if the children of Ifrael paffed through the Red fea, the waters being divided, and forming a wall on their right hand and on their left—it muft neceffarily be granted, that Mofes was fent by God; becaufe nothing lefs than a divine power was fufficient to perform fuch wonderful works. But he who fuppofes that thofe works were never performed, muft affirm that the books recording them were *forged*, either at the era in which the miracles are faid to have been wrought, or at fome fubfequent era: There is no other alternative.

That they could not be *forged* at the era in which they affirm the miracles to have been wrought, a very few reflections will make incontrovertibly evident. Thefe books inform the people for whofe ufe they were written, that their author, after having inflicted various plagues upon Pharaoh and his fubjects, brought them, to the number of 600,000, out of Egypt with a high hand; that they were led by a pillar of cloud through the day, and by a pillar of fire through the night, to the brink of the Red fea, where they were almoft overtaken by the Egyptians, who had purfued them with chariots and horfes; that, to make a way for their efcape, Mofes ftretched out his rod over the fea, which was immediately divided, and permitted them to pafs through on dry ground, between two walls of water; and that the Egyptians, purfuing and going in after them to the midft of the fea, were all drowned by the return of the waters to their ufual ftate, as foon as the Hebrews arrived at the further fhore. Is it poffible now that Mofes or any other man could have perfuaded 600,000 perfons, however barbarous and illiterate we fuppofe them, that they had been witneffes of all thefe wonderful works, if no fuch works had been performed? Could any art or eloquence perfuade all the inhabitants of Edinburgh and Leith, that they had yefterday walked on dry ground through the Frith to Kinghorn, the waters being divided and forming a wall on their right hand and on their left? If this queftion muft be anfwered in the negative, it is abfolutely impoffible that the books of Mofes, fuppofing them to have been forged, could have been received by the people who were alive when thofe wonders are faid to have been wrought.

Let us now inquire, whether, if they be forgeries, they could have been received as authentic at any fubfequent period; and we fhall foon find this fuppofition as impoffible as the former. The books claiming Mofes for their author fpeak of themfelves as delivered by him, and from his days kept in the ark of the covenant *; an ark which, upon this fuppofition, had no exiftence prior to the forgery. They fpeak of themfelves likewife, not only as a hiftory of miracles wrought by their author, but as the ftatutes or municipal law of the nation, of which a copy was to be always in the poffeffion of the prieffs, and another in that of the fupreme magiftrate †. Now, in whatever age we fuppofe thefe books to have been forged, they could not poffibly be received as authentic; becaufe no copy of them could then be found either with the king, with the prieffs, or in the ark, though, as they contain the ftatute law of the land, it is not conceivable that, if they had exifted, they could have been kept fecret. Could any man, at this day, forge a book of ftatutes for England or Scotland, and make it pafs upon thefe nations for the only book of ftatutes which they had ever known? Was there ever fince the world began a book of fham ftatutes, and thefe, too, multifarious and burdenfome, impofed upon any people as the only ftatutes by which they and their fathers had been governed for ages? Such a forgery is evidently impoffible.

But the books of Mofes have internal proofs of authenticity, which no other books of ancient ftatutes ever had. They not only contain the laws, but alfo give an hiftorical account of their enactment, and the reafons upon which they were founded. Thus they tell us §, that the rite of circumcifion was inftituted as a mark of the covenant between God and the founder of the Jewifh nation, and that the practice of it was enforced by the declaration of the Almighty, that every uncircumcifed man-child fhould be cut off from his people. They inform us that the annual folemnity of the paffover was inftituted in commemoration of their deliverance when God flew, in one night, all the firft-born of the Egyptians; that the firft-born of Ifrael, both of men and beaft, were on the fame occafion dedicated for ever to God, who took the Levites inftead of the firft-born of the men ‡; that this tribe was confecrated as prieffs, by whofe hands alone the facrifices of the people were to be offered; that it was death for any perfon of a different tribe to approach the altar, or even to touch the ark of the covenant; and that Aaron's budding rod was kept in the ark in memory of the wonderful deftruction of Korah, Dathan, and Abiram, for their rebellion againft the prieffhood.

Is it poffible now, if all thefe things had not been practifed among the Hebrews from the era of Mofes, with a retrofpect to the fignal mercies which they are faid to commemorate, that any man or body of men could have perfuaded a whole nation, by means of forged books, that they had always religiouffy obferved fuch inftitutions? Could it have been poffible, at any period pofterior to the Exodus, to perfuade the Ifraelites that they and their fathers had all been circumcifed on the eighth day from their birth, if they had been confcious themfelves that they had never been circumcifed at all? or that the paffover was kept in memory of their deliverance from Egyptian bondage, if no fuch feftival was known among them?

But let us fuppofe that circumcifion had been practifed, and all their other rites and ceremonies obferved from time immemorial, without their knowing any reafon of fuch inftitutions; ftill it muft be confeffed that the forger of thefe books, if they *were* forged, conftructed his narrative in fuch a manner as that no man

* Deut. xxxi. 24-27.

† Deut. xvii. 19.

§ Gen. xvii.

‡ Exod. xii. and Numb. viii.

Religion. of common ſenſe could receive it as authentic. He ſays it was death to touch the ark! As ſuch an aſſertion was never heard of before, and as the ritual he was endeavouring to make them eſteem ſacred was oppreſſively multifarious; ſurely ſome daring ſpirit would have ventured to put his veracity to the teſt by moving the ark and even offering ſacrifices; and ſuch a teſt would at once have expoſed the impoſture. The budding red, too, and the hat of manna, which, though long preſerved, were never before heard of, muſt have produced inquiries that could not fail to end in detection. Theſe books ſpeak likewiſe of weekly ſabbaths, daily ſacrifices, a yearly expiation, and monthly feſtivals, all to be kept in remembrance of great things particularly ſpecified as done for the nation at an early period of its exiſtence. If this was not the caſe, could the forger of the books have perſuaded the people that it really was ſo? The enlightened reaſoners of this nation would be offended were we to compare them with the ancient Iſraelites; but ſurely they will not ſay that we are partial to that people, if we bring them to a level with the moſt ſavage tribes of the Ruſſian empire, who profeſs Chriſtianity? Now, were a book to be forged containing an account of many ſtrange things done a thouſand years ago in Siberia by an *Apolonius*, or any other philoſopher or hero, numbers of the barbarians inhabiting that country would, we doubt not, give implicit credit to the *legend*: But were the author, in confirmation of his narrative, to aſſirm, that all the Siberians had from that day to this kept ſacred the firſt day of the week in memory of his hero; that they had all been baptized or circumciſed in his name; that in their public judicatories they had ſworn by his name, and upon that very book which they had never ſeen before; and that the very ſame book was their law and their goſpel, by which for a thouſand years back the actions of the whole people had been regulated—ſurely the groſſeſt ſavage among them would reject with contempt and indignation a forgery ſo palpable.

If this reaſoning be concluſive, the books of Moſes muſt indubitably be authentic, and he himſelf muſt have been inſpired by the ſpirit of God. But this point being eſtabliſhed, the queſtion reſpecting the origin of the primæval religion is completely anſwered. The writer of the book of Geneſis informs us, that Adam and Noah received many revelations from the Author of their being, and that their religion was founded on the principles of the pureſt theiſm. How it degenerated among the greater part of their deſcendants into the groſſeſt idolatry, has been ſhown at large in another place. See POLYTHEISM.

17 Of the influence of religion on ſociety.

II. Having thus anſwered the firſt queſtion propoſed for diſcuſſion in the preſent article, we now proceed to conſider the ſecond, and to inquire whether and how far religious ſentiments have a tendency to injure or to promote the welfare of ſociety? This is a ſubject of the utmoſt importance; and if we prove ſucceſsful in our inquiries, we ſhall be enabled to determine whether the governors of mankind ought carefully to ſupport religious eſtabliſhments, or whether the philoſopher who calls himſelf a citizen of the world, and profeſſes to feel the moſt eager deſire to promote the intereſts of his ſpecies, acts conſiſtently when he labours to exterminate religion from among men.

A celebrated French financier *, a man of abilities and virtue; who has publiſhed a book on the importance of religious opinions, labours to ſhow that religious eſtabliſhments are indiſpenſably neceſſary for the maintenance of civil order, and demonſtrates how weak the influence of political inſtitutions is on the morals of mankind; but he refuſes to review the hiſtory of paſt ages in order to diſcover how far religious opinions have actually been injurious or beneficial to the welfare of ſociety; choouſing rather to content himſelf with the reſult of a ſeries of metaphyſical diſquiſitions.

* M. Necker.

We admire the ſpirit which induced a man who had ſpent a conſiderable part of his life amid the hurry of public buſineſs, to become the ſtrenuous advocate of religion; but we cannot help thinking that, notwithſtanding the eloquence, the acuteneſs, and the knowledge of mankind which he has diſplayed, his refuſing to admit the evidence of facts concerning the influence of religion on ſociety may poſſibly be regarded by its enemies as a tacit acknowledgment that the evidence of facts would be unfavourable to the cauſe which he wiſhes to defend. The fallacy of general reaſonings, and the inutility of metaphyſics for the purpoſes of life, are ſo univerſally acknowledged, that they have long been the theme of declamation. Though the abuſes of religion, as well as the abuſes of reaſon, the perverſion of any of the principles of the human mind, and the miſapplication of the gifts of providence, may have often produced effects hurtful to the virtue and the happineſs of mankind; yet, after tracing religion to a divine origin, we cannot, for a moment, allow ourſelves to think that the primary tendency of religion muſt be hoſtile to the intereſts of ſociety, or that it is neceſſary to view it abſtractly in order that we may not behold it in an odious light. Often has the ſceptic attacked religion with artful malice; but perhaps none of his attacks has been ſo ſkilfully directed as that which has firſt ridiculed the abſurdity of the moſt abſurd ſuperſtitions, and afterwards laboured to prove that the moſt abſurd ſyſtem of polytheiſm is more favourable to the intereſts of ſociety than the pureſt and moſt ſublime theiſm. Inſtances in which the abuſe of religion had tended to deprave the human heart, and had led to the moſt ſhocking crimes, have been aſſiduouſly collected, and diſplayed in all the aggravating colours in which eloquence could array them, till at length even the friends of true religion have been abaſhed; and it has become a faſhionable opinion, that nothing but ſelf-intereſt or bigotry can prompt men to repreſent religion as the friend of civil order. But let us try if, by a candid conſideration of what effects have reſulted to ſociety from religious principles, in general, without comparing theſe with regard to truth or falſehood, we can advance any thing to vindicate the character of religion.

18 Triumph of the ſo- of ac- count of the abuſes of religion.

Notions of Deity in general, of various orders of divinities, of their moral character, of their influence on human life, of a future ſtate, and of the immortality of the human ſoul, conſtitute the leading articles of religion. Let us view theſe together with the rites to which they have given riſe; and we may perhaps be enabled to form ſome well-grounded notions on this important point.

19 The firſt religious opinions entertained by men could not poſſibly be injurious to ſociety.

1. Having proved that the firſt religious principles entertained by men were derived from revelation, it is impoſſible to ſuppoſe that they could produce effects injurious

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jurious to ſociety. If religion of any kind has ever leſſened the virtue or diſturbed the peace of men, it muſt have been that religion which ſprings from a belief in a multitude of ſuperior powers actuated by paſſions, and of whom ſome were conceived as benevolent and others as malicious beings. That ſuch ſentiments ſhould have produced vices unknown in ſocieties where pure theiſm is profeſſed, will be readily admitted. Even the few *atheiſts* who live in Chriſtian or Mahometan countries are reſtrained by the laws, by a deſire to promote the honour of the ſect, and by many other conſiderations, from indulging in practices which the example of the falſe gods of antiquity ſanctioned in their votaries. But in determining the preſent queſtion, we muſt not compare the virtues of the pagan world with thoſe of individual atheiſts in modern Europe, but with thoſe of *nations* profeſſing atheiſm; and ſuch nations are nowhere to be found. We can however eaſily conceive, that in a ſociety unawed by any notions of God or a future ſtate, no ſuch laws would be enacted as thoſe which reſtrain the ſenſual appetites; of which the criminal indulgence was one of the greateſt ſtigmas on the pagan worſhip of antiquity. In ſuch ſocieties, therefore, thoſe vices would be practiſed conſtantly to which paganiſm gave only an occaſional ſanction; and many others, in ſpite of the utmoſt vigilance of human laws, would be perpetrated in ſecret, which the moſt profligate pagans viewed with horror. Conſcience, though acting with all her energy, would not be able to command any regard to the laws of morality: No virtue would be known; ſocial order would be nowhere obſerved; the midnight aſſaſſin would everywhere be found; and in the general ſcramble mankind would be exterminated from the face of the earth.

The worſt ſpecies of paganiſm, even that which prevails among ſavages who worſhip evil ſpirits, affords greater ſecurity than this. It is indeed ſhocking to think that demons ſhould be worſhipped, while deities, who are regarded as being all benevolence, are treated with contempt: And it has been aſked, If the influence of ſuch religious ſentiments on the moral practice of the idolaters muſt not naturally be, to cauſe them to treat their friends and benefactors with ingratitude, and to humble themſelves with mean ſubmiſſion before a powerful enemy?

They do not appear to have produced ſuch effects on the morality of the ſavages by whom they were entertained. The benevolent deities were neglected, only becauſe their benevolence was neceſſary. A voluntary favour merits a grateful return: a deſigned injury provokes reſentment. But when you become, by accident, the inſtrument of any man's good fortune, the world will ſcarce conſider him as owing you any obligation: the ſtone which bruiſes your foot excites only a momentary emotion of reſentment. Thoſe gods who could not avoid doing good to men might not receive a profuſion of thanks for their ſervices; and yet a favour conferred by an human benefactor commands the warmeſt gratitude. But thoſe rude tribes appear to have had ſo much wiſdom as to confer a leſs abſolute malice on their malevolent deities, than the benevolence which they attributed to their more amiable order of ſuperior beings: though the latter could not poſſibly do them any thing but good, and that conſtantly; yet the former were not under an equally indiſpenſable neceſſity of perſevering in depreſſing them under calamities. On their malevolent deities they conferred a freedom of agency which they denied to the benevolent. No wonder, then, that they were more aſſiduous in paying their court to the one than to the other. They might with as much propriety have thought of being grateful to the boar or ſtag whoſe fleſh ſupported them, as to deities who were always benevolent, becauſe they could not poſſibly be otherwiſe. Though negligent of ſuch deities, this can ſcarce be thought to have had any tendency to render them ungrateful to benefactors like themſelves. And yet, it muſt not be diſſembled, that the American Indians, among whom ſuch religious ſentiments have been found to prevail, are ſaid to be very little ſenſible to the emotions of gratitude. An Indian receives a preſent without thinking of making any grateful acknowledgments to the beſtower. He pleaſes his fancy or gratifies his appetite with what you have given, without ſeeming to conſider himſelf as under the ſmalleſt obligation to you for the gift.

It may be doubted, however, whether this ſpirit of ingratitude originates from, or is only collateral with, that indifference which refuſes adoration and worſhip to the benevolent divinities. If the former be actually the caſe, we muſt acknowledge that thoſe religious notions which we now conſider, though preferable to general atheiſm, are in this reſpect unfriendly to virtue. But if the Indians may be thought to owe the ingratitude for which they are diſtinguiſhed to the opinion which they entertain of the exiſtence of a benevolent order of deities, whoſe benevolence is neceſſary and involuntary, their ideas of the nature of their malevolent demons do not appear to have produced equal effects on their moral ſentiments. However ſubmiſſive to thoſe dreaded beings, they are far from ſhowing the ſame tame and cowardly ſubmiſſion to their human enemies: towards them they ſeem rather to adopt the ſentiments of their demons. Inveterate rancour and brutal fury, inhuman cruelty and inconceivable cunning, are diſplayed in the hoſtilities of tribes at war; and we know not, after all, if even theſe ſentiments do not owe ſomewhat of their force to the influence of religion.

Yet let us remember that theſe ſame Indians have not been always repreſented in ſo unamiable a light; or, at leaſt, other qualities have been aſcribed to them which ſeem to be inconſiſtent with thoſe barbarous diſpoſitions. They have been deſcribed as peculiarly ſuſceptible of conjugal and parental love; and he who is ſo cannot be deſtitute of virtue.

21 The influence of Greek and Roman polytheiſm

2. But leaving the religion of ſavages, of which very little is known with certainty, let us proceed to examine what is the natural influence of that mixed ſyſtem of theology which repreſents to the imagination of men a number of ſuperior and inferior divinities, actuated by the ſame paſſions and feelings with themſelves, and often making uſe of their ſuperior power and knowledge for no other purpoſe but to enable them to violate the laws of moral order with impunity. This is the celebrated polytheiſm of the Greeks and Romans, and moſt other nations of antiquity (ſee POLYTHEISM). Could its influence be favourable to virtue?

22 Apparently friendly to profligacy.

At a firſt view every perſon will readily declare, that ſuch a ſyſtem muſt have been friendly to profligacy. If you commit the government of the univerſe, and the inſpection of human ſociety, to a ſet of beings who are often

Religion. often disposed to regard vice with a no less favourable eye than virtue, and who, though there be an established order by which virtue is discriminated from vice, and right from wrong, yet scruple not to violate that order in their own conduct; you cannot expect them to require in you a degree of rectitude of which they themselves appear incapable. A Mercury will not discourage the thievish arts of the trader; a Bacchus and a Venus cannot frown upon debauchery; Mars will behold with savage delight all the cruelties of war. The Thracians indeed, one of the most barbarous nations of antiquity, whose ferocity was little if at all inferior to that of the Indians who have been distinguished as cannibals, was the favourite nation of Mars; among whom stood his palace, to which he repaired when about to mount his chariot, and arm himself for battle. Even Jupiter, who had been guilty of so many acts of tyrannical caprice, had been engaged in such a multitude of amorous intrigues, and seemed to owe his elevated station as monarch of the sky, not to superior goodness or wisdom, but merely to a superior degree of brutal force, could not be feared as the avenger of crimes, or revered as the impartial rewarder of virtues.

23 But when contrasted with atheism its effects were favourable:

That this system had a pernicious effect on morals, and that, as compared with pure theism, it was injurious to society, cannot be denied; but yet, when contrasted with atheism, it was not without its favourable effects. It was so connected with the order of society, that, without its support, that order could scarce have been maintained. The young rake might perhaps justify himself by the example of Jupiter, or Apollo, or some other amorous divinity; the frail virgin or matron might complain of Cupid, or boast of imitating Venus; and the thief might practise his craft under the patronage of Mercury: But if we take the whole system together, if we consider with what views those deities were publicly worshipped, what temples were raised, what rites instituted, what sacrifices offered, and what *feriæ* consecrated; we shall perhaps find it necessary to acknowledge that the general effects even of that mixed and incoherent system of polytheism which prevailed among the Greeks and Romans were favourable to society. To state a particular instance; the *ancilia* of Mars and the fire of Vesta were thought to secure the perpetuity of the Roman empire. As long as the sacred *ancile*, which had been dropped from heaven for that benevolent purpose, was safely preserved in those holy archives in which it had been deposited; and as long as the sacred fire of Vesta was kept burning, without being once extinguished, or at least suffered to remain for an instant in that state; so long was Rome to subsist and flourish. And, however simple and absurd the idea which connected the prosperity of a nation with the preservation of a piece of wood in a certain place, or with the constant blazing of a flame upon an hearth; yet no fact can be more certain, than that the patriotism and enthusiastic valour of the Romans, which we so much extol and admire, were, in many instances, owing in no inconsiderable degree to the veneration which they entertained for the *ancilia* and the vestal fire.

23 As is proved by a numerous series of facts, &c.

A numerous series of facts occur in the Roman history, which show the happy effects of their religious opinions and ceremonies on their sentiments concerning social order and the public welfare. How powerful was the influence of the *sacramentum* administered to the soldiers when they enlisted in the service of their country? The promises made, the idea of the powers invoked, and the rites performed on that occasion, produced so deep and so awful an impression on their minds, that no danger, nor distress, nor discontent, could prompt them to violate their engagements. The responses of the oracles, too, though the dictates of deceit and imposture, were often of singular service to those to whom they were uttered; when they inspired the warrior, as he marched out to battle, with the confidence of success, they communicated to him new vigour, and more heroic valour, by which he was actually enabled to gain, or at least to deserve, the success which they promised. Again, when in times of public distress, the augur and the priest directed some games to be celebrated, certain sacrifices to be offered, or some other solemnities to be performed, in order to appease the wrath of the offended deities; it is plain that the means were not at all suited to accomplish the end proposed by them; yet still they were highly beneficial. When the attention of the whole people was turned entirely to those solemnities by which the wrath of heaven was to be averted, they were roused from that despondency under which the sense of the public distress or danger might have otherwise caused them to sink: the public union was at the same time more closely cemented, and the hearts of the people knit together; and when persuaded, that by propitiating the gods they had removed the cause of their distress, they acquired such calmness and strength of mind as enabled them to take more direct and proper measures for the safety of the state.

Could we view the ancient Greeks and Romans acting in public or in private life under the influence of that system of superstition which prevailed among them; could we perceive how much it contributed to the maintenance of civil order; could we behold Numa and Lycurgus establishing their laws, which would otherwise have met with a very different reception under the sanction of divinities; could we observe all the beneficial effects which arose to communities from the celebration of religious ceremonies—we should no longer hesitate to acknowledge, that those principles in the human heart by which we are susceptible of religious sentiments, are so eminently calculated to promote the happiness of mankind, that even when perverted and abused, their influence is still favourable.

25 Their notion of a future state of retribution incorrect;

The ideas which prevailed among the nations of the heathen world concerning a future state of retribution were, it must be confessed, not very correct. Some of the poets, we believe, have represented them in no unfair light: both Homer and Virgil have conducted their heroes through the realms of Pluto, and have taken occasion to unfold to us the secrets of those dreary abodes. The scenes are wild and fanciful; the rewards of the just and virtuous are of no very refined or dignified nature: and of the punishments inflicted on the guilty, it is often hard to say for what ends they could be inflicted; whether to correct and improve, or for the gratification of revenge or whim: they are often so whimsical and unsuitable, that they cannot with any degree of propriety be ascribed to any cause but blind chance or wanton caprice. A great dog with three tongues, a peevish old boat-man with a leaky ferry-boat, demanding

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manding his freight in a surly tone, and an usurious monarch, are objects too familiar and ludicrous not to degrade the dignity of those awful scenes which are represented as the mansions of the dead, and to prevent them from making a deep enough impression on the imagination. The actions and qualities, too, for which departed spirits were admitted into Elysium, or doomed to the regions of suffering, were not always of such a nature as under a well-regulated government on earth would have been thought to merit reward, or to be worthy of punishment. It was not always virtue or wisdom which conducted to the Elysian fields, or gained admission into the society of the immortal gods.—Ganimede was for a very different reason promoted to be the cup-bearer of Jove; and Hercules and Bacchus could not surely plead that any merits of that kind entitled them to seats in the council, and at the banquets of the immortals. That doctrine, likewise, which represented mortals as hurried by fate to the commission of crimes, which they could no more abstain from committing than the sword can avoid to obey the impulse of a powerful and furious arm plunging it into the breast of an unresisting antagonist, could not but produce effects unfavourable to virtue; and it afforded a ready excuse for the most extravagant crimes.

26 Nevertheless favourable to virtue and moral order.

Yet, after all, he who attentively considers the ideas of the Greeks and Romans concerning the moral government of the world and a future state of rewards and punishments, will probably acknowledge, that their general influence must have been favourable to virtue and moral order. Allow them to have been incorrect and dashed with absurdity; still they represent punishments prepared for such qualities and actions as were injurious to the welfare of society; whilst, for those qualities which rendered men eminently useful in the world, they hold forth a reward. Though incorrect, their ideas concerning a future state were exceedingly distinct; they were not vague or general, but such as might be readily conceived by the imagination, in all their circumstances, as really existing. When a man is told that for such a deed he will be put to death, he may shudder and be alarmed, and think of the deed as what he must by no means commit; but place before him the scene and the apparatus for his execution, call him to behold some other criminal mounting the scaffold, addressing his last words in a wild scream of despair to the surrounding spectators, and then launching into eternity—his horror of the crime, and his dread of the punishment, will now be much more powerfully excited. In the same manner, to encourage the soldier marching out to battle, or the mariner setting sail under the prospect of a storm, promise not, merely in general terms, a liberal reward; be sure to specify the nature of the reward which you mean to bestow; describe it so as that it may take hold on the imagination, and may rise in opposition to the images of death and danger with which his courage is to be assailed.

If these phenomena of the human mind are fairly stated, if it be true that general ideas produce no very powerful effects on the sentiments and dispositions of the human heart, it must then be granted, that though the scenes of future reward and punishment, which the heathens considered as prepared for the righteous and the wicked, were of a somewhat motley complexion; yet still, as they were distinct and even minute draughts, they must have been favourable to virtue, and contributed in no inconsiderable degree to the support of civil order.

27 The notion of deities peopling all nature favourable to tenderness when compared with atheism.

Another thing of which we may take notice under this head, is the vast multiplicity of deities with which the Greek and Roman mythology peopled all the regions of nature. Flocks and fields, and woods and oaks, and flowers, and many much more minute objects, had all their guardian deities. These were somewhat capricious at times, it is true, and expected to have attention paid them. But yet the faithful shepherd, and the industrious farmer, knew generally how to acquire their friendship; and in the idea of deities enjoying the same simple pleasures, partaking in the same labours, protecting their possessions, and bringing forward the fruits of the year, there could not but be something of a very pleasing nature, highly favourable to industry, which would animate the labours, and cheer the festivals, of the good people who entertained such a notion; nay, would diffuse a new charm over all the scenes of the country, even in the gayest months of the year.

From all of these particular observations, we think ourselves warranted to conclude, that notwithstanding the mixed characters of the deities who were adored by the celebrated nations of antiquity; though they are in many instances represented as conspicuous for vices and frolics; however vain, absurd, and morally criminal, some of the rites by which they were worshipped may have been, and however incorrect the notions of the heathens concerning the moral government of the universe and a future state of retribution; yet still, after making a just allowance for all these imperfections, the general influence of their religious system was rather favourable than unfavourable to virtue and to the order and happiness of society.

28 The advantage of establishing laws, &c. on the basis of religion.

It was not without good reason that the earliest legislators generally endeavoured to establish their laws and constitutions on the basis of religion; government needs the support of opinion; the governed must be impressed with a belief that the particular establishment to which they are required to submit, is the best calculated for their security and happiness, or is supported on some such solid foundation, that it must prove impossible for them to overturn it, or is connected with some awful sanction, which it would be the most heinous impiety to oppose. Of these several notions, the last will ever operate on most men with the most steady influence. We are frequently blind to our own interest; even when eager for the attainment of happiness, we often refuse to take the wisest measures for that end. The great bulk of the people in every community are so little capable of reasoning and foresight, that the public minister who shall most steadily direct his views to the public good will often be the most unpopular. Those laws, and that system of government, which are the most beneficial, will often excite the strongest popular discontents. Again, it is not always easy to persuade people that your power is superior to theirs, when it is not really so. No one man will ever be able to persuade a thousand that he is stronger than they all together: and therefore, in order to persuade one part of his subjects or army that it is absolutely necessary for them to submit to him, because any attempts to resist his power would prove ineffectual, a monarch or general must take care first to persuade another part that it is for their in-

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terest to submit to him; or to impress the whole with a belief that, weak and pitiful as he himself may appear, when viewed singly in opposition to them all, yet by the assistance of some awful invisible beings, his friends and protectors, he is so powerful, that any attempts to resist his authority must prove presumptuous folly. Here, then, the aid of religion becomes requisite. Religious sentiments are the most happily calculated to serve this purpose. Scarce ever was there a society formed, a mode of government established, or a code of laws framed and enacted, without having the religious sentiments of mankind, their notions of the existence of superior invisible beings, and their hopes and fears from those beings, as its fundamental principle. Now, we believe, it is almost universally agreed, that even the rudest form of society is more favourable to the happiness of mankind, and the dignity of the human character, than a solitary and savage state. And if this, with what we have asserted concerning religion as the basis of civil government, be both granted, it will follow, that even the most imperfect religious notions, the most foolish and absurd rites, and the wildest ideas that have been entertained concerning the moral government of the universe by superior beings, and a future state of retribution, have been more advantageous than atheism to the happiness and virtue of human life. We have already granted, nor can it be denied, indeed, that many of the religious opinions which prevailed among the ancient heathens, did contribute, in some degree, to the depravation of their morals: and all that we argue for is, that on a comparative view of the evil and the good which resulted from them, the latter must appear more than adequate to counterbalance the effects of the former.

29 The infinite advantage of a pure, rational, and true religion.

But if such be the natural tendency of those principles by which the human heart is made susceptible of religious sentiments, that even enthusiasm and absurd superstition are productive of beneficial effects more than sufficient to counterbalance whatever is malignant in their influence on society—surely a pure rational religion, the doctrines of which are founded in undeniable truth, and all the observances which it enjoins, calculated to promote by their direct and immediate effects some useful purposes, must be in a very high degree conducive to the dignity and the happiness of human nature. Indeed one collateral proof of the truth of any religion, which must have very considerable weight with all who are not of opinion that the system of the universe has been produced and hitherto maintained in order and existence by blind chance, will be its having a stronger and more direct tendency than others to promote the interests of moral virtue and the happiness of mankind in the present life. Even the testimony of thousands, even miracles, prophecies, and the sanction of remote antiquity, will scarce have sufficient weight to persuade us, that a religion is of divine origin, if its general tendency appear to be rather unfavourable than advantageous to moral virtue.

30 Comparative view of the effects of different religious systems.

III. We shall therefore, in the next place, endeavour to determine, from a comparative view of the effects produced on the character and circumstances of society by the most eminent of these various systems of religion which have been in different ages or in different countries established in the world, how far any one of them has in this respect the advantage over the rest; and, if the utility of a system of religion were to be received as a test of its truth, what particular system might, with the best reason, be received as true, while the rest were rejected.

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1st, The principle upon which we here set out is, that all, or almost all, systems of religion with which we are acquainted, whether true or false, contribute more or less to the welfare of society. But as one field is more fruitful, and one garden less overgrown with weeds than another; so, in the same manner, one system of religious opinions and ceremonies may be more happily calculated than others to promote the truest interests of mankind. In opposition to those philosophers who are so vehement in their declamations against the inequality of ranks, we have ever been of opinion, that refinement and civilization contribute to the happiness of human life. The character of the solitary savage is, we are told, more dignified and respectable than that of the philosopher and the hero, in proportion as he is more independent. He is indeed more independent; but his independence is that of a stone, which receives no nourishment from the earth or air, and communicates none to animals or vegetables around it. In point of happiness, and in point of respectability, we cannot hesitate a moment, let philosophers say what they will, to prefer a virtuous, enlightened, and polished Briton to any of the rudest savages, the least acquainted with the restraints and the sympathies of social life, that wander through the wild forests of the western world. But if we prefer civilization to barbarism, we must admit, that in this view Christianity has the advantage over every other religious system which has in any age or country prevailed among men; for nowhere has civilization and useful science been carried to such a height as among Christians.

31 Advan. of civilization;

32 And the of Christianity.

33 View of the various religious notions of Pagan nations.

It is not, indeed, in any considerable degree that the absurd superstitions of those rude tribes, who can scarce be said to be formed into any regular society, can contribute to their happiness. Among them the faculty of reason is but in a very low state; and the moral principle usually follows the improvement or the depression of the reasoning faculty. Their appetites and merely animal passions are almost their only principles of action: their first religious notions, if we suppose them not to be derived from revelation or tradition, are produced by the operation of gratitude, or grief, or hope, or fear, upon their imaginations. And to these, however wild and fanciful, it is not improbable that they may owe some of their earliest moral notions. The idea of superior powers naturally leads to the thought that those powers have some influence on human life. From this they will most probably proceed to fancy one set of actions agreeable, another offensive, to those beings to whom they believe themselves subject. And this, perhaps, is the first distinction that savages can be supposed to form between actions, as right or wrong, to be performed or to be avoided. But if this be the case, we must acknowledge that the religious notions of the savage, however absurd, contribute to elevate his character, and to improve his happiness, when they call forth the moral principle implanted in his breast.

But if the social state be preferable to a state of wild and solitary independence, even the rude superstitions of unenlightened tribes of savages are in another respect beneficial to those among whom they prevail. They usually

usually form, as has been already observed under this article, the basis of civil order. Religious opinions may lead the great body of the community to reverence some particular set of institutions, some individual, or some family, which are represented to them as peculiarly connected with the gods whom they adore. Under this sanction some form of government is established; they are taught to perform social duties, and rendered capable of social enjoyments. Not only Numa and Lycurgus, but almost every legislator who has sought to civilize a rude people, and reduce them under the restraints of legal government, have endeavoured to impress their people with an idea that they acted with the approbation, and under the immediate direction, of superior powers. We cannot but allow that the rude superstitions of early ages are productive of these advantages to society; but we have already acknowledged, and it cannot be denied, that they are also attended with many unhappy effects. When we view the absurdities intermixed with the systems of religion which prevailed among most of the nations of antiquity, we cannot help lamenting that so noble a principle of human nature as our religious sentiments should be liable to such gross perversion; and when we view the effects which they produce on the morals of mankind, and the forms of society, though we allow them to have been upon the whole rather beneficial than hurtful, yet we cannot but observe, that their unfavourable effects are by far more numerous than if they had been better directed. What unhappy effects, for instance, have been produced by false notions concerning the condition of human souls in a future state. Various nations have imagined that the scenes and objects of the world of spirits are only a shadowy representation of the things of the present world. Not only the souls of men, according to them, inhabit those regions; all the inferior animals and vegetables, and even inanimate bodies that are killed or destroyed here, are supposed to pass into that visionary world; and, existing there in unsubstantial forms, to execute the same functions, or serve the same purposes, as on earth. Such are the ideas of futurity that were entertained by the inhabitants of Guinea. And by these ideas they were induced, when a king or great man died among them, to provide for his comfortable accommodation in the world of spirits, by burying with him meat and drink for his subsistence, slaves to attend and serve him, and wives with whom he might still enjoy the pleasures of love. His faithful subjects vied with each other in offering, one a servant, another a wife, a third a son or daughter, to be sent to the other world in company with the monarch, that they might there be employed in his service. In New Spain, in the island of Java, in the kingdom of Benen, and among the inhabitants of Indostan, similar practices on the same occasion, owing no doubt to similar notions of futurity, have been prevalent. But such practices as these cannot be viewed with greater contempt on account of the opinions which have given rise to them, than horror on account of their unhappy effects on the condition of those among whom they prevail. A lively impression of the enjoyments to be obtained in a future state, together with some very false or incorrect notions concerning the qualities or actions which were to entitle the departing soul to admission into the scene of those enjoyments, is said to have produced equally unhappy effects among the Japanese. They not only bribed their priests to solicit for them; but looking upon the enjoyments of the present life with disgust or contempt, they used to dash themselves from precipices, or cut their throats, in order to get to paradise as soon as possible. Various other superstitions subsisting among rude nations might here be enumerated, as instances of the perversion of the religious principles of the human heart, which render them injurious to virtue and happiness. The austerities which have been practised, chiefly among rude nations, as means of propitiating superior powers, are especially worthy of notice.—When the favourite idol of the Banians is carried in solemn procession, some devotees prostrate themselves on the ground, that the chariot in which the idol is carried may run over them; others, with equal enthusiasm, dash themselves on spikes fastened on purpose to the car. Innumerable are the ways of torture which have been invented and practised on themselves by men ignorantly striving to recommend themselves to the favour of heaven. These we lament as instances in which religious sentiments have been so ill directed by the influence of imagination, and unenlightened erring reason, as to produce unfavourable effects on the human character, and oppose the happiness of social life.—Though we have argued, that even the most absurd systems of religion that have prevailed in the world, have been upon the whole rather beneficial than injurious to the dignity and happiness of human nature; yet if it shall not appear, as we proceed farther in our comparative view of the effects of religion on society, that others have been attended with happier effects than these superstitions which belong to the rude ages of society, we may scarce venture to brand the infidel with the appellation of *fool*, for refusing to give his assent to religious doctrines, or to act under their influence.

2d, The polytheism of the Greeks and Romans, and other heathen nations in a similar state of civilization, we have already considered as being, upon the whole, rather favourable than unfavourable to virtue; but we must not partially conceal its defects. The vicious characters of the deities which they worshipped, the incorrect notions which they entertained concerning the moral government of the universe and a future retribution, the absurdity of their rites and ceremonies, and the criminal practices which were intermixed with them, must have altogether had a tendency to pervert both the reasoning and the moral principles of the human mind. The debaucheries of the monarch of the gods, and the fidelity with which his example in that respect was followed by the whole crowd of the inferior deities, did, we know, dispose the devout heathen, when he felt the same passions which had asserted their power over the gods, to gratify them without scruple. It is a truth, however, and we will not attempt to deny or conceal it, that the genius of the polytheism of the Greeks and Romans was friendly to the arts; to such of them especially as are raised to excellence by the vigorous exertion of a fine imagination; music, poetry, sculpture, architecture, and painting, all of these arts appear to have been considerably indebted for that perfection to which they attained, especially among the Greeks, to the splendid and fanciful system of mythology which was received among that ingenious people.—

But

Religion. But we cannot give an equally favourable account of its influence on the sciences. There was little in that system that could contribute to call forth reason. We may grant indeed, that if reason can be so shocked with absurdity as to be roused to a more vigorous exertion of her powers, and a more determined assertion of her rights in consequence of surveying it; in that case this system of mythology might be favourable to the exercise and improvement of reason; not otherwise.

The connection of paganism with morality was too imperfect for it to produce any very important effects on the morals of its votaries. Sacrifices and prayers, and temples and festivals, not purity of heart and integrity of life, were the means prescribed for propitiating the favour of the deities adored by the Pagans. There were other means, too, besides true heroism and patriotism, of gaining admission into the Elysian fields, or obtaining a seat in the council of the gods. Xenophon, in one of the most beautiful parts of his Memoirs of Socrates, represents Hercules wooed by Virtue and Pleasure in two fair female forms, and deliberating with much anxiety which of the two he should prefer. But this is the fiction of a philosopher desirous to improve the fables of antiquity in such a way as to render them truly useful. Hercules does not appear, from the tales which are told us of his adventures, to have been at any such pains in choosing his way of life. He was received into the palace of Jove, without having occasion to plead that he had through life been the faithful follower of that goddess to whom the philosopher makes him give the preference; his being the son of Jove, and his wild adventures, were sufficient without any other merits to gain him that honour. The same may be said concerning many of the other demi-gods and heroes who were advanced to heaven, or conveyed to the blessful fields of Elysium. And whatever might be the good effects of the religion of Greece and Rome in general upon the civil and political establishments, and in some few instances on the manners of the people, yet still it must be acknowledged to have been but ill calculated to impress the heart with such principles as might in all circumstances direct to a firm, uniform, tenor of virtuous conduct.

But after what has been said on the character of this religion elsewhere (see POLYTHEISM), and in the second part of this article, we cannot without repetition enlarge farther on it here. Of the Jewish religion, however, we have as yet said little, having on purpose reserved to this place whatever we mean to introduce under the article, concerning its influence on society.

34 View of Judaism. 3d, When we take a general view of the circumstances in which the Jewish religion was established, the effects which it produced on the character and fortune of the nation, the rites and ceremonies which it enjoined, and the singular political institutions to which it gave a sanction, it may perhaps appear hard to determine, whether it were upon the whole more or less beneficial to society than the polytheism of the Egyptians, Greeks, and Romans. But if such be the judgement which preconceived prejudices, or an hasty and careless view, have induced some to form of this celebrated system; there are others who, with equal keenness, and sounder reasoning, maintain, that it was happily calculated, not only to accomplish the great design of preparing the way for the promulgation of the Gospel, but likewise to render the Jews a more refined and virtuous people, and a better regulated community, than any neighbouring nation. In the first place, the attributes of the Deity were very clearly exhibited to the Jews in the establishment of their religion. The miracles by which he delivered them from servitude, and conducted them out of Egypt, were striking demonstrations of his power; that condescension with which he forgave their repeated acts of perverseness and rebellion, was a most convincing proof of his benevolence; and the impartiality with which the observance and the violation of his laws were rewarded and punished, even in the present life, might well convince them of his justice. A part of the laws which he dictated to Moses are of eternal and universal obligation; others of them were local and particular, suited to the character of the Jews, and their circumstances in the land of Canaan. The Jewish code, taken altogether, is not to be considered as a complete system of religion, or laws calculated for all countries and all ages of society. When we consider the expediency of this system, we must take care not to overlook the design for which the Jews are said to have been separated from other nations, the circumstances in which they had lived in Egypt, the customs and manners which they had contracted by their intercourse with the natives of that country, the manner in which they were to acquire to themselves settlements by extirpating the nations of Canaan, the rank which they were to hold among the nations of Syria and the adjacent countries, together with the difficulty of restraining a people so little civilized and enlightened from the idolatrous worship which prevailed among their neighbours: All these circumstances were certainly to be taken into account; and had the legislator of the Jews not attended to them, his institutions must have remained in force only for a short period; nor could they have produced any lasting effects on the character of the nation. With a due attention to these circumstances, let us descend to an examination of particulars.

35 The Sabbath. Although in every religion or superstition that has prevailed through the world, we find one part of its institutions to consist in the enjoining of certain festivals to be celebrated by relaxation from labour, and the performance of certain ceremonies in honour of the gods; yet in none, or almost none besides the Jewish, do we find every seventh day ordained to be regularly kept holy. One great end which the legislator of the Jews had in view in the institution of the Sabbath was, to impress them with a belief that God was the maker of the universe. In the early ages of the world a great part of mankind imagined the stars, the sun, the moon, and the other planets, to be eternal, and consequently objects highly worthy of adoration. To convince the Israelites of the absurdity of this belief, and prevent them from adopting that idolatry, Moses taught them, that those conspicuous objects which the Gentile nations regarded as eternal, and endowed with divine power and intelligence, were created by the hand of God; who, after bringing all things out of nothing, and giving them form, order, and harmony, in the space of six days, rested on the seventh from all his works. Various passages in the Old Testament concur to show, that this was one great end of the institution of the Sabbath.

Sabbath. The observance of the Sabbath, and detestation of idolatrous worship, are frequently inculcated together; and, again, the breach of the Sabbath, and the worship of idols, are usually reprobated at the same time. Another good reason for the institution of a Sabbath might be, to remind the Jews of their deliverance from bondage, to inspire them with humanity to strangers and domestics, and to mitigate the rigours of servitude.

36 Other festivals.

The purposes for which the other festivals of the Jewish religion were instituted appear also of sufficient importance. The great miracle, which, after a series of other miracles, all directed to the same end, finally effected the deliverance of the Jews out of Egypt: and their actual departure from that land of servitude, might well be commemorated in the feast of the passover. To recal to the minds of posterity the history of their ancestors, to impress them with an awful and grateful sense of the goodness and greatness of God, and to make them think of the purposes for which his almighty power had been so signally exerted, were surely good reasons for the institution of such a festival. The feast of Pentecost celebrated the first declaration of the law by Moses, in the space of fifty days after the feast of the passover. It served also as a day of solemn thanksgiving for the blessings of a plenteous harvest. On the feast of tabernacles, they remembered the wanderings of their ancestors through the wilderness, and expressed their gratitude to heaven for the more comfortable circumstances in which they found themselves placed. The feast of new moons served to fix their kalendar, and determine the times at which the other festivals were to be celebrated; on it trumpets were sounded, to give public notice of the event which was the cause of the festival; no servile works were performed, divine service was carefully attended, and the first fruits of the month were offered to the Lord. The Jewish legislator limited his festivals to a very small number, while the heathens devoted a considerable part of the year to the celebration of theirs. But we perceive the occasions upon which the Jewish festivals were celebrated to have been of suitable importance; whereas those of the heathens were often celebrated on trifling or ridiculous occasions. Piety and innocent recreation shared the Jewish festival; the festivals of the heathens were chiefly devoted to debauchery and idleness.

37 The sabbatical year, jubilee, and laws of usury.

The Hebrews had other solemn seasons of devotion besides the weekly Sabbath and these annual festivals. Every seventh year they rested from labour: they were then neither to plough, to sow, nor to prune; and whatever the earth produced spontaneously that year belonged rather to strangers, orphans, and the poor, than to the proprietors of the ground. On this year insolvent debtors were discharged from all debts contracted by purchasing the necessaries of life: and the great end of this release from debts contracted during the preceding six years, appears to have been to prevent the Hebrew from flying to the Gentiles and forsaking his religion when embarrassed in his circumstances. None but native Israelites and proselytes of righteousness were admitted to this privilege; it was refused to strangers, and even to proselytes of the gate. The jubilee was a festival to be celebrated every fiftieth year. It produced the same effects with the sabbatical year as to rest from labour and the discharge of debts; with this addition, that on the year of the jubilee slaves obtained their freedom, and the lands reverted to the old proprietors. On the year of the jubilee, as on the sabbatical year, the lands were to rest uncultivated, and lawsuits were now to terminate. The chief design of this institution appears to have been, to preserve the order of ranks and property originally established in the Hebrew state. None but Israelites or circumcised converts could enjoy the benefit of this institution; nor could even these hope to regain their estates on the year of the jubilee, if they sold them for any other purpose but to supply their necessities. The law relative to usury was evidently founded on the same plan of polity with respect to property. To almost any other nation such a law, it must be confessed, would have been unsuitable and unjust: but as the Jews were not designed for a trading nation, they could have little occasion to borrow, unless to relieve distress; and as an indulgence to people in such circumstances, the Jew was forbidden to exact usury from his brother to whom he had lent money.

38 Of clean and unclean beasts, and the place of worship.

The Jewish legislator, we may well think, would be disposed to adopt every proper method to prevent his nation from falling away into the idolatry of heathen nations. Probably one reason of the distinctions between *clean* beasts which they were permitted to eat, and *unclean* beasts, the eating of which they were taught to consider as pollution, was to prevent them from convivial intercourse with profane nations, by which they might be seduced to idolatry. We do not readily sit down at table with people who are fond of dishes which we regard with abhorrence. And if the Jews were taught to loathe the flesh of some of those animals which were among the greatest delicacies of the Gentiles, they would naturally of consequence avoid sitting down at meat with them, either at their ordinary meals or at those entertainments which they prepared in honour of their deities; and this we may with good reason consider as one happy mean to preserve them from idolatry. Besides, the Jews were permitted, or rather injoined, to eat animals which the Gentiles reverenced as sacred, and from which they religiously with-held all violence. Goats, sheep, and oxen, were worshipped in Egypt (see POLYTHEISM and PAN); and several learned writers are of opinion, that Moses directed his people to sacrifice and eat certain of the favourite animals of the Egyptians, in order to remove from their minds any opinions which they might have otherwise entertained of the sanctity of those pretended deities. Many of the observances which Moses injoined with regard to food, appear to have been intended to inspire the Israelites with contempt for the superstitions of the people among whom they had so long sojourned. They were to kill the animal which the Egyptians worshipped; to roast the flesh which that people ate raw; to eat the head, which they never ate; and to dress the entrails, which they set apart for divination. These distinctions concurred with the peculiarities of their dress, language, government, customs, places, and times of worship, and even the natural situation of their country, by which they were in a manner confined and fortified on all sides, to separate them in such a manner from neighbouring nations, that they might escape the infection of their idolatry. And if we reflect both on the design for which Providence separated the Israelites from other

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nations, and on the probability that, in the ſtate of ſociety in which mankind were during the earlier period of the Jewiſh hiſtory, the Jews, by mixing with other nations, would rather have been themſelves converted to idolatry than have converted idolatrous nations to the worſhip of the true God; we cannot but be ſatisfied, that even this, however it may at firſt appear, was a benefit, not a diſadvantage; and in the author of their legiſlation wiſdom, not caprice.

39 Other diſtinguiſhing part culars in the Jewiſh ritual.

But not only in the diſtinctions of meats, and between clean and unclean animals, does the legiſlator of the Jews appear to have laboured to fix a barrier between them and other nations which might preſerve them from the contagion of idolatry—we ſhall not err, perhaps, if we aſcribe many particulars of their worſhip to this deſign in the inſtitutor. The heathens had gods who preſided over woods, rivers, mountains, and valleys, and to each of theſe they offered ſacrifices, and performed other rites of worſhip in a ſuitable place. Sometimes the grove, ſometimes the mountain top, at other times the bank of the river or the brink of the ſpring, was the ſcene of their devotions. But as the unity of the divine nature was the truth the moſt earneſtly inculcated on the children of Iſrael; ſo in order to impreſs that truth on their minds with the more powerful efficacy, they were taught to offer their ſacrifices and other offerings only in one place, the place choſen by the Lord; and death was threatened to thoſe who dared to diſobey the command. To confirm this idea, one of the prophets intimates, that when idolatry ſhould be abolitſed, the worſhip of God ſhould not be confined to Jeruſalem, but it would then be lawful to worſhip him anywhere.

40 Effects of theſe inſtitutions, &c. in impreſſing a reſpect for the Deity.

The whole inſtitutions and obſervances of the Jewiſh religion appear to have been deſigned and happily calculated to impreſs the minds of the people with veneration and reſpect for the Deity. All the feſtivals which either commemorated ſome gracious diſpenſation of his providence towards their anceſtors, or ſerved as days of thankſgiving for the conſtant returns of his goodneſs to thoſe who celebrated them, and all the other rites deſigned to fortify them againſt idolatry, ſerved at the ſame time to impreſs their hearts with awful reverence for the God of Jacob. Various other particulars in the inſtitutions of the Jewiſh economy appear to have been directed ſolely to that end. Into the moſt ſacred place, the Holy of Holies, none but the high prieſt was admitted, and he only once a year. No fire was uſed in ſacrifice but what was taken from the altar. Severe puniſhments were on various occaſions inflicted on ſuch as preſumed to intermeddle in the ſervice of the ſanctuary in a manner contrary to what the law had directed. All the laws reſpecting the character, the circumſtances, and the ſervices, of the prieſts and the Levites, appear plainly to have a ſimilar tendency.

In compliance with the notions of Deity which naturally prevailed among a groſs and rude people, though no viſible object of worſhip was granted to the Jews, yet they were allowed in their wanderings through the wilderneſs to have a tabernacle or portable temple, in which the ſovereign of the univerſe ſometimes deigned to diſplay ſome rays of his glory. Incapable as they were of conceiving aright concerning the ſpiritual nature and the omnipreſence of the Deity, they might poſſibly have thought Jehovah careleſs and indifferent about them, had they been at no time favoured with a viſible demonſtration of his preſence.

41 Sacrifice and luſtrations.

The ſacrifices in uſe among the Gentiles in their worſhip of idols were permitted by the Jewiſh legiſlator; but he directed them to be offered with views very different from thoſe with which the Gentiles ſacrificed to their idols. Some of the ſacrifices of the Jewiſh ritual were deſigned to avert the indignation of the Deity; ſome to expiate offences and purify the heart; and all of them to aboliſh or remove idolatry. Luſtrations or ablutions entered likewiſe into the Jewiſh ritual; but theſe were recommended and enjoined by Moſes for purpoſes widely different from thoſe which induced the heathens to place ſo high a value upon them. The heathens practiſed them with magical and ſuperſtitious ceremonies; but in the Jewiſh ritual they were intended ſimply for the cleanſing away of impurities and pollutions.

42 Tendency of the theocracy and temporal ſanctions.

The theocratical form of government to which the Jews were ſubject, the rewards which they were ſure of receiving, and the puniſhments which they were equally liable to ſuffer in the preſent life, had a powerful effect to remove ſuperſtition and preſerve them from idolatry, as well as to ſupport all the ſocial virtues among them. They were promiſed a numerous offſpring, a land flowing with milk and honey, long life, and victory over their enemies, on the condition of their paying a faithful obedience to the will of their heavenly Sovereign; plague, famine, diſeaſe, defeats, and death, were threatened as the puniſhments to be inflicted on thoſe who violated his laws: and theſe ſanctions, it muſt be allowed, were happily accommodated to the genius of a rude and carnal-minded people, attentive only to preſent objects, and not likely to be influenced by remote and ſpiritual conſiderations.

43 Rites and prohibitions of leſs apparent utility,

There were other rites and prohibitions in the Moſaic law, which appear to have had but little connection with religion, morals, or policy. Theſe may be more liable to be objected againſt, as adding an unneceſſary weight to a burden which, though heavy, might yet have been otherwiſe borne in conſideration of the advantages connected with it. Even theſe, however, may perhaps admit of being viewed in a light in which they ſhall appear to have been in no way unfavourable to the happineſs of thoſe to whom they were enjoined. They appear to have had none of them an immoral tendency: all of them had, in all probability, a tendency to remove or prevent idolatry, or to ſupport, in ſome way or other, the religious and the civil eſtabliſhment to which they belonged.

44 The whole admirably calculated for the purpoſes intended.

From theſe views of the ſpirit and tendency of the Jewiſh religion, we may fairly conclude it to have been happily calculated to promote the welfare of ſociety. In comparing it with other religions, it is neceſſary to reflect on the peculiar purpoſes for which it was given; that its two principal objects were to preſerve the Jews a ſeparate people, and to guard them againſt the contagion of the ſurrounding idolatry. When theſe things are taken into conſideration, every candid mind acquainted with the hiſtory of ancient nations will readily acknowledge that the whole ſyſtem, though calculated indeed in a peculiar manner for them, was as happily adapted for the purpoſes for which it had been wiſely and graciouſly intended, as it is poſſible to imagine any

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such system to be. It would be unhappy, indeed, if, on a comparison of pure theism with polytheism, the latter, with all its absurdities, should be found more beneficial to mankind than the former. The theism of the Jews was not formed to be disseminated through the earth; that would have been inconsistent with the purposes for which it is said to have been designed. But while the Jews were separated by their religion from all other nations, and perhaps, in some degree, fixed and rendered stationary in their progress towards refinement, they were placed in circumstances, in respect to laws, and government, and religion, and moral light, which might with good reason render them the envy of every other nation in the ancient world.

45 Review of Christianity.

IV. The Christian religion next demands our attention. It is to be considered as an improvement of the Jewish, or a new superstructure raised on the same basis. If the effects of the Jewish religion were beneficial to those among whom it was established, they were confined almost to them alone. But is the spirit of Christianity equally pure and benignant? Is its influence equally beneficial and more diffusive than that of Judaism? Does it really merit to have triumphed over both the theism of the Jews and the polytheism of the heathens?

46 The doctrines pure and rites simple.

If we consider the doctrines and precepts of the Christian religion, nothing can be more happily calculated to raise the dignity of human nature, and promote the happiness of mankind. The happiness of the individual is best promoted by the exercise of love and gratitude towards God, and resignation to his providence; of humanity, integrity, and good will towards men; and by the due government of our appetites and passions. Social happiness again proceeds from the members of society entertaining a disinterested regard for the public welfare; being actively industrious each in his proper sphere of exertion; and being strictly just and faithful, and generously benevolent in their mutual intercourse. The tenor of the gospel inculcates these virtues; it seems everywhere through the whole of the Christian code to have been the great design of its Author to inspire mankind with mild, benevolent, and peaceable dispositions, and to form them to courteous manners. Christianity again represents the Deity and his attributes in the fairest light; even so as to render our ideas of his nature, and the manner in which he exerts his power, consistent with the most correct principles of morality that can be collected from all the other religions that have prevailed in the earth, and from the writings of the most admired philosophers. The ritual observances which Christianity enjoins are few in number, easy to perform, decent, expressive, and edifying. It inculcates no duties but what are founded on the principles of human nature, and on the relation in which men stand to God, their Creator, Redeemer, and Sanctifier; and it prescribes accurate rules for the regulation of the conduct. The assistance of the spirit of God is promised in this sacred volume to those who assiduously labour to discharge the duties which it enjoins; and it exhibits a striking example of spotless purity, which we may safely venture to imitate. The gospel teaches that worldly afflictions are incident to both good and bad men; a doctrine highly conducive to virtue, which consoles us in distress, prevents despair, and encourages us to persist firmly in our integrity under every difficulty and trial. Christianity represents all men as children of the same God, and heirs of the same salvation, and levels all distinctions of rich and poor, as accidental and insignificant in the sight of him who rewards or punishes with impartiality according to the merits or demerits of his creatures. This doctrine is highly favourable to virtue, as it tends to humble the proud, and to communicate dignity of sentiment to the lowly; to render princes and inferior magistrates moderate and just, gentle and condescending, to their inferiors. It farther requires husbands to be affectionate and indulgent to their wives, wives to be faithful and respectful to their husbands, and both to be true and constant to each other. Such is the purity of the gospel, that it forbids us even to harbour impure thoughts; it requires us to abandon our vices, however dear to us; and to the cautious wisdom of the serpent it directs us to join the innocent simplicity of the dove. The Christian dispensation, to prevent a perseverance in immorality, offers pardon for the past, provided the offender forsake his vicious practices, with a firm resolution to act differently in future. The sanctions of the gospel have a natural tendency to exalt the mind above the paltry pursuits of this world, and to render the Christian incorruptible by wealth, honours, or pleasures. The true Christian not only abstains from injustice towards others, but even forgives those injuries which he himself suffers, knowing that he cannot otherwise hope for forgiveness from God. Such are the precepts, such the spirit, and such the general tendency of the gospel. Even those who refused to give credit to its doctrines and history have yet acknowledged the excellence of its precepts. They have acknowledged, that "no religion ever yet appeared in the world of which the natural tendency was so much directed to promote the peace and happiness of mankind as the Christian; and that the gospel of Christ is one continued lesson of the strictest morality, of justice, benevolence, and universal charity." These are the words of Bolingbroke, one of its keenest and most insidious opponents. Without examining the effects of this religion on society, we might almost venture to pronounce with confidence, that a religion, the precepts of which are so happily formed to promote all that is just and excellent, cannot but be in the highest degree beneficial to mankind. By reviewing the effects which it has actually produced, the favourable opinion which we naturally conceive of it, after considering its precepts, cannot but be confirmed.

47 The virtues it recommends unostentatious.

One circumstance we must take notice of as rather unfavourable to this review. It is really impossible to do justice to Christianity by such a discussion of its merits. The virtues which it has a natural tendency to produce and cherish in the human heart, are not of a noisy ostentatious kind; they often escape the observation of the world. Temperance, gentleness, patience, benevolence, justice, and general purity of manners, are not the qualities which most readily attract the admiration and obtain the applause of men. The man of Ross, whom Mr Pope has so justly celebrated, was a private character; his name is now likely to live, and his virtues to be known to the latest posterity: and yet, however disinterested his virtues, however beneficial his influence to all around him, had his character not attracted the notice of that eminent poet, his name would

would perhaps ere this time have been loſt in oblivion. Individuals in private life ſeldom engage the attention of the hiſtorian; his object is to record the actions of princes, warriors, and ſtateſmen. Had not the profeſſors of Chriſtianity in the earlier ages of its exiſtence been expoſed to perſecutions, and unjuſt accuſations from which they were called on to vindicate themſelves, we ſhould be ſtrangers to the names and virtues of ſaints and martyrs, and to the learning and endowments of the firſt apologiſts for Chriſtianity. We can therefore only trace the general influence of the inſtitutions of Chriſtianity on ſociety. We cannot hope to make an accurate enumeration of particulars. In many of the countries in which it has been eſtabliſhed, it has produced a very favourable change on the circumſtances of domeſtic life. Polygamy, a practice repugnant to the will of our Creator (ſee POLYGAMY), who has declared his intentions in this inſtance in the plaineſt manner, by cauſing nearly equal numbers of males and females to be brought into the world, was never completely aboliſhed but by Chriſtianity.

49 Its effects on the manners of nations.

The practice of divorce, too, though in ſome caſes proper and even neceſſary, had been ſo much abuſed at the time of our Saviour's appearance in the world, that he found reaſon to declare it unlawful, unleſs in the caſe of adultery. The propriety and reaſonableneſs of this prohibition will ſufficiently appear, if we conſider, that when divorces are eaſily obtained, both parties will often have nothing elſe in view at the period of marriage than the diſſolution of their nuptial engagements after a ſhort cohabitation; the intereſts of the huſband and the wife will almoſt always be ſeparate; and the children of ſuch a marriage are ſcarce likely to enjoy the cordial affection and tender watchful care of either parent. The huſband in ſuch a caſe will naturally be to his wife, not a friend and protector, but a tyrant; fear and deceit, not love, gratitude, or a ſenſe of duty, will be the principles of the wife's obedience.

In another inſtance, likewiſe, Chriſtianity has produced an happy change on the circumſtances of domeſtic life; it muſt be acknowledged to have contributed greatly to the abolition of ſlavery, or at leaſt to the mitigation of the rigour of ſervitude. The cuſtoms and laws of the Romans in relation to ſlaves were cruel and ſevere. Maſters were often ſo inhuman as to remove aged, ſick, or infirm ſlaves, into an iſland in the Tiber, where they ſuffered them to periſh without pity or aſſiſtance. The greater part of the ſubjects of many of thoſe republics which enjoyed the moſt liberty, groaned under tyrannical oppreſſion; they were condemned to drag out a miſerable exiſtence in hard labour, under inhuman uſage, and to be transferred like beaſts from one maſter to another. The hardſhips of ſlavery were eaſed, not by any particular precept of the Goſpel, but by the gentle and humane ſpirit which breathed through the general tenor of the whole ſyſtem of doctrines and precepts of which the Goſpel conſiſts. It muſt indeed be allowed, that a trade in ſlaves is at preſent carried on by people who preſume to call themſelves Chriſtians, and protected by the legiſlature of Chriſtian ſtates: but the ſpirit of the Chriſtian code condemns the practice, and the true Chriſtian will not engage in it.

Partly by the direct and conſpicuous, partly by the ſecret and unſeen, influence of Chriſtianity ſince its promulgation in the world, the hearts of men have been gradually ſoftened; even barbarians have been formed to mildneſs and humanity; the influence of ſelfiſhneſs has been checked and reſtrained; and even war, amid all the pernicious improvements by which men have ſought to render it more terrible, has aſſumed much more of the ſpirit of mildneſs and peace than ever entered into it during the reign of heatheniſm.

If we review the hiſtory of mankind with a view to their political circumſtances, we ſhall find, that by ſome means or other, it has happened, ſince the time when the Goſpel was firſt preached, that both ſyſtems of legiſlature and forms of government have been raiſed to much greater perfection, at leaſt in thoſe parts of the world into which the religion of Jeſus has made its way, and obtained an eſtabliſhment.

The popular government of the Romans, notwithſtanding the multiplicity of their laws, and the imperfection of their political conſtitution, was, no doubt, happily enough adapted to promote the increaſe of the power and the extenſion of the empire of Rome. In Greece there were various republics, the wiſdom and impartiality of whoſe laws have been highly celebrated. But we apprehend that there is a ſufficient number of well authenticated facts to warrant us to affirm, that ſince Chriſtianity has been propagated, and has had ſufficient time to produce its full effect on arts, manners, and literature, even under governments the form of which might appear leſs favourable than the celebrated models of antiquity to the liberty and happineſs of the people in general, theſe actually have been much better provided for than under the laws of Athens or Sparta, or even of Rome in the days of the conſuls. It is a juſt and happy obſervation of Monteſquieu, who has attributed ſo much to the influence of climate and local circumſtances, that "the mildneſs ſo frequently recommended in the Goſpel is incompatible with the deſpotic rage with which an arbitrary tyrant puniſhes his ſubjects, and exerciſes himſelf in cruelty. It is the Chriſtian religion (ſays he) which, in ſpite of the extent of empire, and the influence of climate, has hindered deſpotiſm from being eſtabliſhed in Ethiopia, and has carried into Africa the manners of Europe. The heir to the empire of Ethiopia enjoys a principality, and gives to other ſubjects an example of love and obedience—Not far from hence may be ſeen the Mahometan ſhutting up the children of the king of Sennaar, at whoſe death the council ſends to murder them in favour of the prince who aſcends the throne. Let us ſet before our eyes (continues that eloquent writer), in the third chapter of the 24th book of his Spirit of Laws, on one hand the continual maſſacres of the kings and generals of the Greeks and Romans, and on the other the deſtruction of people and cities by the famous conquerors Timur Beg and Jenghiz Kan, who ravaged Aſia, and we ſhall perceive, that we owe to Chriſtianity in government a certain political law, and in war a certain law of nations, which allows to the conquered the great advantages of liberty, laws, wealth, and always religion, when the conqueror is not blind to his own intereſt."

Theſe are the reflections of no common judge in this matter, but one who had long ſtudied the hiſtory of nations, and obſerved the phenomena of the various forms of ſociety, with ſuch ſucceſs as few others have attained.

49 Effects of softening and humanizing barbarians.

But on no occasion has the mild influence of Christianity been more eminently displayed, or more happily exerted, than in softening and humanizing the barbarians who overturned the Roman empire. The idolatrous religion which prevailed among those tribes before their conversion to Christianity, instead of disposing them to cultivate humanity and mildness of manners, contributed strongly to render them fierce and blood-thirsty, and eager to distinguish themselves by deeds of savage valour. But no sooner had they settled in the dominions of Rome, and embraced the principles of Christianity, than they became a mild and generous people.

We are informed by Mosheim, who was at pains to collect his materials from the most authentic sources, that in the 10th century Christian princes exerted themselves in the conversion of nations whose fierceness they had experienced, in order to soften and render them more gentle. The mutual humanity with which nations at war treat each other in modern times, is certainly owing, in a great measure, to the influence of the mild precepts of the Gospel. It is a fact worthy of notice too, that during the barbarous ages, the spiritual courts of justice were more rational and impartial in their decisions than civil tribunals.

How many criminal practices which prevailed among heathen nations have been abolished by their conversion to Christianity! Christians of all nations have been observed to retain the virtues and reject the vicious practices of their respective countries. In Parthia, where polygamy prevailed, they are not polygamists; in Persia, the Christian father does not marry his own daughter. By the laws of Zoroaster the Persians committed incest until they embraced the Gospel; after which period they abstained from that crime, and observed the duties of chastity and temperance, as enjoined by its precepts. Even the polished and enlightened Romans were cruel and blood-thirsty before the propagation of the Gospel. The breaking of a glass, or some such trifling offence, was sufficient to provoke Vidius Pollio to cast his slaves into fish-ponds to be devoured by lampreys. The effusion of human blood was their favourite entertainment; they delighted to see men combating with beasts, or with one another; and we are informed on respectable authority, that no wars ever made such havock on mankind as the fights of gladiators, which sometimes deprived Europe of 20,000 lives in one month. Not the humanity of Titus, nor the wisdom and virtue of Trajan, could abolish the barbarous spectacle. However humane and wise in other instances, in this practice those princes complied with the custom of their country, and exhibited splendid shows of gladiators, in which the combatants were matched by pairs; who, though they had never injured nor offended each other, yet were obliged to maim and murder one another in cold blood. Christian divines soon exercised their pens against these horrid practices; the Christian emperor Constantine restrained them by edicts, and Honorius finally abolished them. It would be tedious to proceed through an enumeration of particulars; but wherever Christianity has been propagated, it has constantly operated to the civilization of the manners of mankind, and to the abolition of absurd and criminal practices. The Irish, the Scotch, and all the ancient inhabitants of the British isles, were, notwithstanding their intercourse with the Romans, rude barbarians, till such time as they were converted to Christianity. The inhuman practice of exposing infants, which once prevailed so generally over the world, and still prevails among some Pagan nations, even under very humane and enlightened legislatures, yielded to the influence of Christianity.

50 Learning is much indebted to Christianity.

Let us likewise remember, in honour of Christianity, that it has contributed eminently to the diffusion of knowledge, the preservation and the advancement of learning. When the barbarians overspread Europe, what must have become of the precious remains of polished, enlightened antiquity, had there been no other depositaries to preserve them but the heathen priests? We allow that even the Romish clergy during the dark ages did not study the celebrated models of ancient times with much advantage themselves, and did not labour with much assiduity to make the laity acquainted with them. It must even be acknowledged, that they did not always preserve those monuments of genius with sufficient care, as they were often ignorant of their real value. Yet, after all, it will be granted, it cannot be denied, that had it not been for the clergy of the Christian church, the lamp of learning would, in all probability, have been entirely extinguished, during that night of ignorance and barbarity in which all Europe were buried for a long series of centuries, after the irruption of the barbarians into the Roman empire.

51 The beneficial influence of Christianity has extended even to those who have not embraced it.

Such is the excellence of the Christian system, and such its tendency to meliorate the human character, that its beneficial influence has not been confined to those who have received its doctrines and precepts, and have professed themselves Christians; it has even produced many happy effects on the circumstances and the characters of Pagans and infidels, who have had opportunities of beholding the virtues of Christians, and learning the excellence of the morality of the gospel. Those virtues which distinguished the character of the apostate Julian were surely owing in no inconsiderable degree to his acquaintance with Christianity; and it is an undeniable fact, that after the propagation of Christianity through the Roman empire, even while the purity of that holy religion was gradually debased, the manners of those Pagans who remained unconverted became more pure, and their religious doctrines and worship less immoral and absurd.—We might here adduce a tedious series of facts to the same purpose. Whenever Christians have had any intercourse with Pagan idolaters, and have not concealed the laws of the gospel, nor shown by their conduct that they disregarded them, even those who have not been converted to Christianity have, however, been improved in their dispositions and manners by its influence. The emperor, whose virtues we have mentioned as arising, in a certain degree, from his acquaintance with Christianity, in a letter to an Heathen pontiff, desires him to turn his eyes to the means by which the superstition of Christians was propagated: by kindness to strangers, by sanctity of life, and by the attention which they paid to the burial of the dead. He recommends an imitation of their virtues, exhorts him to cause the priests of Galatia to be attentive to the worship of their gods, and authorises him to strip them of the sacerdotal function, unless they obliged their wives, children, and servants,

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to pay attention to the same duties. He likewise enjoins works of beneficence, desires the priest to relieve the distressed, and to build houses for the accommodation of strangers of whatever religion; and says, it is a disgrace for Pagans to disregard those of their own religion, while Christians do kind offices to strangers and enemies. This is indeed an eminent instance of the happy influence of Christianity even on the sentiments and manners of those who regarded the Christian name with abhorrence.

52 Christianity to be preferred to all other religions.

Upon the whole then, may we not, from the particulars here exhibited concerning the influence of this religion on the manners and happiness of men in society, conclude that Christianity is infinitely superior to the superstitions of Paganism? as being in its tendency uniformly favourable to the virtue and the happiness of mankind, and even to the system of religion and laws delivered by Moses to the children of Israel: because, while the religion of the Jews was calculated only for one particular nation, and it may almost be said for one particular stage in the progress of society, Christianity is an universal religion, formed to exert its happy influence in all ages and among all nations; and has a tendency to dispel the shades of barbarism and ignorance, to promote the cultivation of the powers of the human understanding, and to encourage every virtuous refinement of manners.

53 View of Mahometanism.

V. Another religion, which has made and still makes a conspicuous figure in the world remains yet to be examined. The religion of Mahomet is that which we here allude to. Whether we consider through what an extensive part of the globe that religion prevails, the political importance of the nations among whom it is professed, or the striking peculiarity of character by which it is distinguished from all other religious systems—it is for all these reasons well worthy of particular notice. Like the Jewish religion, it is not barely a system of religious doctrines and general moral precepts; it forms both the civil legislature and the religious system of those nations among whom it is professed; and, like it too, it would appear to be calculated rather for one particular period in the progress of mankind from rudeness to refinement, than for all ages and all states of society.

The history of its origin is pretty well known, and we have had occasion to enlarge upon it under a former article (see MAHOMET and MAHOMETANISM). We are not here to trace the impostures of the prophet, or to consider the arts by which he so successfully accomplished his designs; but merely to consider the morality of his religion, and its influence on civil order and the happiness of society.

54 It is friendly to ignorance, despotism, and impurity.

If we view the state of the nations among whom it is established, we cannot hesitate a moment to declare it friendly to ignorance, to despotism, and to impurity of manners. The Turks, the Persians, and the Malays, are all Mahometans; and in reviewing their history and considering their present state, we might find a sufficient number of facts to justify the above assertion: and we must not neglect to observe, that, as those nations are not known to have ever been since their conversion to Mahometanism under a much happier government, or in a much more civilized state than at present, it cannot be, with any degree of fairness, argued, with respect to Mahometanism as with respect to Christianity, that it is only when its influence is so opposed by other causes as to prevent it from producing its full effects, that it does not conduct those societies among which it is established to an high state of civilization and refinement.

55 Remarks on the Koran, &c.

One, and that by no means an inconsiderable, part of the Koran, was occasionally invented to solve some difficulty with which the prophet found himself at the time perplexed, or to help him to the gratification of his ruling passions, lust and ambition. When he and his followers were, at any time, unsuccessful in those wars by which he fought to propagate his religion, to prevent them from falling away into unbelief, or sinking into despondency, he took care to inform them that God suffered such misfortunes to befal believers, as a punishment for their sins, and to try their faith. The doctrine of predestination, which he assiduously inculcated, had an happy effect to persuade his followers to rush boldly into the midst of death and danger at his command. He prevailed with Zeyd to put away his wife, married her himself, and pretended that his crime had the approbation of heaven; and, in the Koran, he introduces the Deity approving of this marriage. Being repulsed from the siege of Mecca, he made a league with the inhabitants; but on the very next year, finding it convenient to surprise the city, by violating this treaty, he justified his perfidy by teaching his followers to disregard promises or leagues made with infidels. In some instances again, we find absurd prohibitions enjoined for similar reasons: his officers, having on some occasion drunk to excess, excited much riot and confusion in the camp, he prohibited the use of wine and other inebriating liquors among his followers in future. Now, though it must be acknowledged that many evils arise from the use of these liquors, yet we cannot but think that, when used in moderation, they are in many cases beneficial to men; and certainly as much allowed by God as opium, which the Mahometans have substituted in their place.

56 Mahometanism a mixture of Christianity, Judaism, and the superstitions of Arabia.

Mahomet is allowed to have copied from the Christian and the Jewish religions, as well as from the idolatrous superstitions which prevailed through Arabia, and thus to have formed a motley mixture of reason and absurdity, of pure theism and wild superstition. He considered also the circumstances of his country, and the prejudices of his countrymen. When he attended to the former, he was generally judicious enough to suit his doctrines and decisions to them with sufficient skill; the latter he also managed with the greatest art: but he entered into accommodation with them in instances when a true prophet or a wise and upright legislator would surely have opposed them with decisive vigour. Where the prophet indulges his own fancy, or borrows from the superstitions of his countrymen, nothing can be more ridiculous than that rhapsody of lies, contradictions, and extravagant fables, which he delivers to his followers. Amazing are the absurdities which he relates concerning the patriarchs, concerning Solomon, and concerning the animals that were assembled in Noah's ark.

57 Notion of heaven and hell.

But in the whole tissue of absurdities of which his system consists, there is nothing more absurd, or more happily calculated to promote impurity of manners, than his descriptions of heaven and hell; the ideas of future rewards and punishments which he sought to impress

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on the minds of his followers. Paradise was to abound with rivers, trees, fruits, and shady groves; wine which would not intoxicate was to be there plentifully served up to believers; the inhabitants of that happy region were all to enjoy perpetual youth; and their powers of enjoyment were to be enlarged and invigorated, in order that so many fine things might not be thrown away upon them. "Instead of inspiring the blessed inhabitants of paradise with a liberal taste for harmony and science, conversation, and friendship (says Mr Gibbon), Mahomet idly celebrates the pearls and diamonds, the robes of silk, palaces of marble, dishes of gold, rich wines, artificial dainties, numerous attendants, and the whole train of sensual luxury.—Seventy two houris, or black-eyed girls of resplendent beauty, blooming youth, virgin purity, and exquisite sensibility, will be created for the use of the meanest believer; a moment of pleasure will be prolonged for 1000 years, and his faculties will be increased 100 fold, to render him worthy of his felicity." It must be acknowledged that he allows believers other more refined enjoyments than these; thus they are to see the face of God morning and evening; a pleasure which is far to exceed all the other pleasures of paradise. The following is his description of the punishments of hell: The wicked are there to drink nothing but boiling stinking water; breathe nothing but hot winds; dwell for ever in continual burning fire and smoke; eat nothing but briars and thorns, and the fruit of a tree that riseth out of the bottom of hell, whose branches resemble the heads of devils, and whose fruits shall be in their bellies like burning pitch.

All that we can conclude from a general view of the religion of Mahomet, from considering the character of the prophet, or from reviewing the history of the nations among whom it has been established, is, that it is one tissue of absurdities, with a few truths, however, and valuable precepts incongruously intermixed; that a great part of it is unfavourable to virtuous manners, to wise and equal laws, and to the progress of knowledge and refinement. It often inculcates in a direct manner sentiments that are highly immoral; it substitutes trifling, superstitious observances in the room of genuine piety and moral virtue; and it gives such views of futurity as render purity of heart no necessary qualification for seeing God.

Surely, therefore, even the deist, who rejects all but natural religion, would not hesitate to prefer Christianity, and even Judaism, to the religion of Mahomet. Judaism, calculated for a peculiar people, was undoubtedly much more sublime and much more happily framed to render that people virtuous and happy in the circumstances in which they were placed; and Christianity we find to be an universal religion, suited to all circumstances and to all the stages of society, and acting, wherever it is received, with more or less force to the support of civil order, virtuous manners, improvement of arts, and the advancement of science. However, as Mahometanism forms in some measure a regular system, as it has borrowed many of the precepts and doctrines of Judaism and Christianity, not indeed without corrupting and degrading them; and as it has contributed considerably to the support of civil government, although in a very imperfect form, in those countries in which it has obtained an establishment; for all these reasons we cannot but give it the preference to the superstitions of Paganism.

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§ 2. Conclusion.

The whole result of our inquiries under this article, therefore, is, 1. That as man, by the constitution of his mind, is naturally fitted for acquiring certain notions concerning the existence of invisible, superior beings, and their influence on human life; so the religious ideas which we find to have in all ages of the world, and in all the different stages of the progress of society, prevailed among mankind, appear to have originated partly from the natural exertions of the human imagination, understanding, and passions, in various circumstances, and partly from supernatural revelation.

2. That though religious opinions, together with the moral precepts, and the rites of worship connected with them, may appear to have been in numerous instances injurious to the virtue and happiness of society; yet, as they have often contributed to lead the mind to form moral distinctions, when it would otherwise in all probability have been an entire stranger to such distinctions; and as they have always contributed in an essential manner to the establishment and the support of civil government—it must therefore be acknowledged that they have always, even in their humblest state, been more beneficial than hurtful to mankind.

3. That when the different systems of religion that have prevailed in the world are comparatively viewed with respect to their influence on the welfare of society, we find reason to prefer the polytheism of the Greeks and Romans to the ruder, wilder, religious ideas and ceremonies that have prevailed among savages; Mahometanism, perhaps in some respects, to the polytheism of the Greeks and Romans; Judaism however to Mahometanism; and Christianity to all of them.

RELIGIOUS, in a general sense, something that relates to religion.—We say, a religious life, religious society, &c.—Churches and church-yards are religious places.—A religious war is also called a *croisade*. See Croisade.

Religious, is also used substantially for a person engaged by solemn vows to the monastic life; or a person shut up in a monastery to lead a life of devotion and austerity, under some rule or institution. The male religious we popularly call *monks* and *friars*; the female, *nuns* and *canonesses*.

REMBRANDT (Van Rhin), a Flemish painter and engraver of great eminence, was born in 1606, in a mill upon the banks of the Rhine, from whence he derived his name of *Van Rhin*. This master was born with a creative genius, which never attained perfection. It was said of him, that he would have invented painting, if he had not found it already discovered. Without study, without the assistance of any master, but by his own instinct, he formed rules, and a certain practical method for colouring; and the mixture produced the designed effect. Nature is not set off to the greatest advantage in his pictures; but there is such a striking truth and simplicity in them, that his heads, particularly his portraits, seem animated, and rising from the canvas. He was fond of strong contrasts of light and shade. The light entered in his working-room only by a hole, in the manner of a camera obscura, by which he judged with greater certainty of his productions. This artist considered painting like the stage, where

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where the characters do not ſtrike unleſs they are exaggerated. He did not purſue the method of the Flemiſh painters of finiſhing his pieces. He ſometimes gave his light ſuch thick touches, that it ſeemed more like modelling than painting. A head of his has been ſhown, the noſe of which was ſo thick of paint, as that which he copied from nature. He was told one day, that by his peculiar method of employing colours, his pieces appeared rugged and uneven—he replied, he was a painter, and not a dyer. He took a pleaſure in dreſſing his figures in an extraordinary manner: with this view he had collected a great number of eaſtern caps, ancient armour, and drapery long ſince out of fashion. When he was adviſed to conſult antiquity to attain a better taſte in drawing, as his was uſually heavy and uneven, he took his counſellor to the cloſet where theſe old veſtments were depoſited, ſaying, by way of deriſion, thoſe were his antiques.

Rembrandt, like moſt men of genius, had many caprices. Being one day at work, painting a whole family in a ſingle picture, word being brought him that his monkey was dead, he was ſo affected at the loſs of this animal, that, without paying any attention to the perſons who were ſitting for their pictures, he painted the monkey upon the ſame canvas. This whim could not fail of diſpleaſing thoſe the piece was deſigned for; but he would not efface it, choofing rather to loſe the ſale of his picture.

This freak will appear ſtill more extraordinary in Rembrandt, when it is conſidered that he was extremely avaricious; which vice daily grew upon him. He practiſed various ſtratagems to ſell his prints at a high price. The public were very deſirous of purchaſing them, and not without reaſon. In his prints the ſame taſte prevails as in his pictures; they are rough and irregular, but pictureſque. In order to heighten the value of his prints, and increaſe their price, he made his ſon ſell them as if he had purloined them from his father; others he expoſed at public ſales, and went thither himſelf in diſguiſe to bid for them; ſometimes he gave out that he was going to leave Holland, and ſettle in another country. Theſe ſtratagems were ſucceſsful, and he got his own price for his prints. At other times he would print his plates half finiſhed, and expoſe them to ſale; he afterwards finiſhed them, and they became freſh plates. When they wanted retouching, he made ſome alterations in them, which promoted the ſale of his prints a third time, though they differed but little from the firſt impreſſions.

His pupils, who were not ignorant of his avarice, one day painted ſome pieces of money upon cards; and Rembrandt no ſooner ſaw them, than he was going to take them up. He was not angry at the pleaſantry, but his avarice ſtill prevailed. He died in 1674.

REMEMBRANCE, is when the idea of ſomething formerly known recurs again to the mind without the operation of a like object on the external ſenſory. See MEMORY and REMINISCENCE.

REMEMBRANCERS, anciently called *clerks of the remembrance*, certain officers in the exchequer, whereof three are diſtinguiſhed by the names of the *king's remembrancer*, the *lord treaſurer's remembrancer*, and the *remembrancer of the firſt fruits*. The king's remembrancer enters in his office all recognizances taken before the barons for any of the king's debts, for appearances or obſerving of orders; he alſo takes all bonds for the king's debts, &c. and makes out proceſſes thereon. He likewiſe iſſues proceſſes againſt the collectors of the cuſtoms, exciſe, and others, for their accounts; and informations upon penal ſtatutes are entered and ſued in his office, where all proceedings in matters upon Engliſh bills in the exchequer-chamber remain. His duty further is to make out the bills of compoſitions upon penal laws, to take the ſtatement of debts; and into his office are delivered all kinds of indentures and other evidences which concern the aſſuring any lands to the crown. He every year *in craſtino animarum*, reads in open court the ſtatute for election of ſheriffs; and likewiſe openly reads in court the oaths of all the officers, when they are admitted.

The lord treaſurer's remembrancer is charged to make out proceſs againſt all ſheriffs, eſcheators, receivers, and bailiffs, for their accounts. He alſo makes out writs of *fieri faciat*, and extent for debts due to the king, either in the pipe or with the auditors; and proceſs for all ſuch revenue as is due to the king on account of his tenures. He takes the account of ſheriffs; and alſo keeps a record, by which it appears whether the ſheriffs or other accountants pay their proffers due at Eaſter and Michaelmas; and at the ſame time he makes a record, whereby the ſheriffs or other accountants keep their prefixed days: there are likewiſe brought into his office all the accounts of cuſtomers, comptrollers, and accountants, in order to make entry thereof on record; alſo all eſtreats and amercements are certified here, &c.

The remembrancer of the firſt-fruits takes all compoſitions and bonds for the payment of firſt-fruits and tenths; and makes out proceſs againſt ſuch as do not pay the ſame.

REMINISCENCE, that power of the human mind, whereby it recollects itſelf, or calls again into its remembrance ſuch ideas or notions as it had really forgot: in which it differs from memory, which is a treaſuring up of things in the mind, and keeping them there, without forgetting them.

REMISSION, in phyſics, the abatement of the power or efficacy of any quality; in oppoſition to the *increaſe* of the ſame, which is called *intenſion*

REMISSION, in law, &c. denotes the pardon of a crime, or the giving up the puniſhment due thereto.

REMISSION, in medicine, is when a diſtemper abates for a time, but does not go quite off.

REMITTANCE, in commerce, the traffick or return of money from one place to another, by bills of exchange, orders, or the like.

REMONSTRANCE, an expoſtulation or humble ſupplication, addreſſed to a king, or other ſuperior, beſeeching him to reflect on the inconveniences or ill conſequences of ſome order, edict, or the like. This word is alſo uſed for an expoſtulatory counſel, or advice; or a gentle and handſome reproof, made either in general, or particular, to apprize of or correct ſome fault, &c.

REMORA, or SUCKING-FISH, a ſpecies of ECHENEIS. Many incredible things are related of this animal by the ancients; as that it had the power of ſtopping the largeſt and ſwifteſt veſſel in its courſe: and even to this day it is aſſerted by the fiſhermen in the Mediterranean, that it has a power of retarding the motion of their boats by attaching itſelf to them; for which

which reason they kill it whenever they perceive this retardation. But in what manner the remora performs this, we have no account.

REMORSE, in its worst sense, means that pain or anguish which one feels after having committed some bad action. It also means tenderness, pity, or sympathetic sorrow. It is most generally used in a bad sense, and is applied to persons who feel compunction for some great crime, as murder and such like. Murders which have been committed with the utmost circumspection and secrecy, and the authors of which could never have been discovered by any human investigation, have been frequently unfolded by the remorse and confession of the perpetrators, and that too many years afterwards. Of this there are numerous instances, which are well authenticated, and which are so generally known that it is needless to relate them here. See REPENTANCE.

REMPHAN, an idol or Pagan god whom St Stephen says the Israelites worshipped in the wilderness as they passed from Egypt to the land of Promise: "Yea, ye took up the tabernacle of Moloch, and the star of your god REMPHAN; figures which ye made to worship them." That the martyr here quotes the following words of the prophet Amos, all commentators are agreed: "Ye have borne the tabernacle of your Moloch, and CHIUN your images, the star of your god, which ye made to yourselves." But if this coincidence between the Christian preacher and the Jewish prophet be admitted, it follows, that *Chiun* and *Remphan* are two names of one and the same deity. This is indeed farther evident from the LXX translators having substituted in their version the word Ραιφαν, instead of *Chiun*, which we read in the Hebrew and English Bibles. But the question which still remains to be answered is, what god was worshipped by the name of *Remphan*, *Raiphan*, or *Chiun?* for about the other divinity here mentioned there is no dispute. See MOLOCH.

That *Chiun* or *Remphan* was an Egyptian divinity, cannot be questioned; for at the era of the *Exodus* the Hebrews must have been strangers to the idolatrous worship of all other nations; nor are they ever accused of any other than Egyptian idolatries during their 40 years wanderings in the wilderness, till towards the end of that period that they became infected by the Moabites with the worship of *Baal-peor*. That *Moloch*, *Moleck*, *Melek*, or *Milcom*, in its original acceptation denotes a *king* or *chief*, is known to every oriental scholar; and therefore when it is used as the name of a god, it undoubtedly signifies the *sun*, and is the same divinity with the *Egyptian Osiris*. Reasoning in this way many critics, and we believe Selden is in the number, have concluded that *Chiun*, and of course *Remphan*, is the planet *Saturn*; because *Chiun* is written *Ciun*, *Cevan*, *Ceuan*, *Chevvin*; all of which are modern oriental names of that planet.

But against this hypothesis insurmountable objections present themselves to our minds. It is universally allowed (see POLYTHEISM), that the first objects of idolatrous worship were the *sun* and *moon*, considered as the king and queen of heaven. The fixed stars, indeed, and the planets, were afterwards gradually admitted into the Pagan rubric; but we may be sure that those would be first associated with the two prime luminaries which most resembled them in brightness, and were supposed to be most benignant to man. But the planet Saturn appears to the naked eye with so feeble a lustre, that, in the infancy of astronomy, it could not make such an impression on the mind as to excite that admiration which we must conceive to have always preceded planetary worship. It is to be observed, too, that by the Pagan writers of antiquity Saturn is constantly represented as a star of baleful influence. He is termed the *leaden planet*; the *planet of malevolent aspect*; the *dismal*, the *inhumane star*. That the Egyptians, at so early a period as that under consideration, should have adored as one of their greatest gods a planet obscure in its appearance, distant in its situation, and baleful in its influence, is wholly incredible.

Remphan.

There is, however, another star which they might naturally adore, and which we know they actually did adore, as one of their most beneficent gods, at a very early period. This is the ασιρακυων or σειριος of the Greeks, the *canis* or *stella canicularis* of the Romans, and the *dog-star* of modern Europe. By the Egyptians it was called *Sothis* or *Soth*, which signifies *safety*, *beneficence*, *fecundity*; and it received this name, because making its appearance in the heavens at the very time when the Nile overflowed the country, it was supposed to regulate the inundation. On this account Plutarch (*Is. et Osir.*) tells us, they believed the soul of their illustrious benefactress *Isis* to have transmigrated into the star *Sothis*, which they therefore worshipped as the divinity which rendered their country fruitful. It made its appearance, too, on the first day of the month *Thoth* (A), which was the beginning of the Egyptian year, and as such celebrated with feasting and festivity; and being by much the brightest star in the heavens, Horopollo (*cap.* 3.) informs us it was considered as sovereign over the rest. A combination of so many important circumstances might have induced a people less superstitious than the Egyptians to pay divine homage to that glorious luminary, which was confounded with *Isis*, who had been long regarded with the highest veneration; and as Isis was the wife and sister of Osiris, and always associated with him, the star of Isis or *Remphan* was naturally associated with *Moloch*, the same with Osiris.

But it will be asked, how the star which by the Egyptians was called *Soth* or *Sothis* came to be worshipped by the Hebrews under the appellation of *Chiun* or *Remphan?* This is a very pertinent question, and we shall endeavour to answer it.

Every one knows that the pronunciation of oriental words is very uncertain; and that as the vowels were often omitted in writing, it is of very little importance to the meaning how they be supplied, provided we retain the radical consonants. The word *Chiun* may with equal propriety be written *Kiun*, *Kion*, or even *Kyon*, the

(A) This was the case at a very remote period; but it is otherwise at present, owing to the PRECESSION of the Equinoxes. See that article.

Remphan the Hebrew *jod* being convertible into the Greek υ or the Roman y; but the words *Cane*, *Chan*, *Kan*, or *Khan*, which are often diversified into *ken*, *Kyn*, *Coben*, *Cahan*, signifying *Head*, *Chief*, *Prince*, *King*, &c. are diffused through a great part of Asia and Europe. In the Chinese language *Quin*, which signifies a *King*, is so similar to the word *Chiun* or *Khun* under consideration, that no etymologist will hesitate to pronounce them of the same original and the same import. The word *Kan* or *Khan* is universally known to be an honorary title in Tartary; and *Kaian* or *Kain*, which is manifestly cognate of the word *Chiun* or *Kiun*, is, in the *Pehevi* or old Persian language, the epithet applied to the dynasty of princes which succeeded Cyrus the Great. Among the Scythians or ancient Tartars, *Ghiun* signifies the *Sun* and likewise the *day*: and *Kung*, *Kinung*, *Kun*, runs through all the dialects of the Gothic tongue, every where denoting a *chief* or *sovereign*. In the Syrian dialect, *Kon* signifies a prince; and hence the Almighty is styled (Gen. xiv. 19.) *Konah*, which is translated *possessor*, but might have, with perhaps more propriety, been rendered *Sovereign* of heaven and earth. In Hebrew, the word *Kahan* or *Kaben*, which is the very same with *Khan* or *Kan*, signifies either a *priest* or a *prince*; and in Egypt *Kon* was the name of the first Hercules or the *sun*. Hence the same word in composition denotes greatness, as *Can-obus* the great serpent; *Can-athoth*, the great *Thoth* or Mercury; *Can-osiris*, the great *Osiris*.

From this deduction we would conclude, that the word, which is found in so many tongues, and always denotes *Chief*, *Prince*, *Sovereign*, is the very word *Chiun* which the Egyptians and Hebrews applied to *Sothis*, as being, in their conceptions, the chief or sovereign of all the stars. This will appear still more probable, when we have ascertained the import of the word *Remphan*, or, as the LXX have it, *Raiphan*.

Phan, the latter part of this word, is unquestionably the same with *Pan*, the most ancient of the Egyptian gods (see PAN). It is likewise a cognate of the Hebrew *Phanah*, conspexit, spectavit, vidit; and the radical word seems to be PHAH, which signifies sometimes the countenance, and sometimes *light*. Hence *Phaethon*, which is compounded of *pha* light, *eth* or *esh* fire, and *on* strength, came to be one of the names of the sun. *Rai*, which we commonly write *Rajah*, has long signified, among the Indians, a subordinate prince; and we know, that between India and Egypt there was a very early intercourse. *Raiphan*, therefore, may be either the *royal light* or the *bright prince*, subordinate to Osiris; and in either sense, it was a very proper epithet of *Sothis* in the Egyptian kalendar. The word *Rem* or *Rom*, again (for it is sometimes written Remphan, and sometimes Rompha), is no other than the Hebrew רם *Rum* "high, exalted." Hence Remphan is the *high* or *exalted light*, which Sothis certainly was.

For this etymological disquisition we are indebted to Dr Doig, the learned author of *Letters on the Savage State*, who has written a dissertation on *Chiun* and *Remphan*, of such value that we hope it will not be much longer with-held from the public. The ascertaining the identity of those names, and the god to which they belonged, is the least of its merit; for it will be found to throw much light upon many passages in the Old Testament. What confirms his interpretation is, that the idol consecrated by the Egyptians to *Sothis* or the dog-star, was a female figure with a star on her head; and hence the prophet upbraids his countrymen with having borne the *Star* of their deity.

ACTION OF REMOVING, in Scots law. See LAW, N clxvii. 18.

REMURIA, festivals established at Rome by Romulus to appease the manes of his brother Remus. They were afterwards called *Lemuria*, and celebrated yearly.

REMUS, the brother of Romulus, was exposed together with his brother by the cruelty of his grandfather. In the contest which happened between the two brothers about building a city, Romulus obtained the preference, and Remus, for ridiculing the rising walls, was put to death by his brother's orders, or by Romulus himself (see ROMULUS). The Romans were afflicted with a plague after this murder; upon which the oracle was consulted, and the manes of Remus appeased by the institution of the Remuria.

RENAL, something belonging to the reins or KIDNEYS.

RENCOUNTER, in the military art, the encounter of two little bodies or parties of forces. In which sense *rencounter* is used in opposition to a pitched battle.

RENCOUNTER, in single combats, is used by way of contradistinction to DUEL.—When two persons fall out and fight on the spot without having premeditated the combat, it is called a *rencounter*.

RENDEZVOUS, or RENDEVOUS, a place appointed to meet in at a certain day and hour.

RENEALMIA, in botany; a genus of the monogynia order, belonging to the monandria class of plants. The corolla is trifid; the nectarium oblong; the calyx monophyllous; the anthera sessile, opposite to the nectarium; the berry is fleshy. There is only one species, which is a native of Surinam.

RENEGADE, or RENEGADO, a person who has apostatized or renounced the Christian faith, to embrace some other religion, particularly Mahometanism.

RENFREW, the county-town of Renfrewshire, standing on the small river Cathcart, which flows into the Clyde at the distance of five miles from Glasgow, is a small but ancient royal borough, the seat of the sheriff's court and of a presbytery. The town is neatly built, and the inhabitants enjoy a tolerable share of commerce.—Renfrew was originally joined to Lanerk, but was made an independent sheriffdom by Robert II. who had a palace here. W. Long. 4. 26. N. Lat. 55. 51.

RENFREWSHIRE, a county of Scotland, styled by way of eminence the *barony*, because it was the ancient inheritance of the Stuarts, is a small county, extending about 20 miles from north to south, and 13 from east to west, parted from Dumbartonshire by the river Clyde on the west, bordering on the east with Lanerkshire, and on the north with Cunningham. The face of the country is varied with hill and vale, wood and stream; crowded with populous villages, and adorned with the seats of gentlemen. The soil is in general fertile, producing rye, barley, oats, pease, beans, flax, and some wheat: it likewise yields plenty of coal, and turf for fuel: and affords abundance of pasturage for sheep and cattle. The inhabitants are Lowlanders and Presbyterians; wealthy and industrious, addicted to traffic, and particularly expert in the linen manufacture.

Their genius is ſtimulated to commerce, by the example of their neighbours of Glaſgow, as well as the convenience of the river and frith of Clyde, along the courſe of which they are ſituated.

RENNES, a town of France, in Bretagne, and capital of that province. Before the revolution it had a biſhop's ſee, two abbeys, a parliament, and a mint. It is very populous; the houſes are ſix or ſeven ſtories high, and the ſuburbs of larger extent than the town itſelf. The cathedral church is large, and the parliament-houſe a handſome ſtructure. The great ſquare belonging to it is ſurrounded with handſome houſes. There is a tower, formerly a pagan temple, which now contains the town-clock. It is ſeated on the river Villaine, which divides it into two parts, and was anciently fortified, but the walls are now in ruins, and the ditch nearly filled up. The ſiege of the city by Edward III. king of England, is very celebrated in hiſtory. The Engliſh and Breton army conſiſted of 40,000 men; and nevertheleſs, after having remained before it ſix months, were obliged to retire without ſucceſs. E. Long. 0. 23. N. Lat. 48. 7.

RENNET. See Runnet.

RENT, in law, a ſum of money, or other conſideration, iſſuing yearly out of lands or tenements.

RENTERING, in the manufactories, the ſame with fine-drawing. It conſiſts in ſewing two pieces of cloth edge to edge, without doubling them, ſo that the ſeam ſcarce appears; and hence it is denominated *fine-drawing*. It is a French word meaning the ſame thing, and is derived from the Latin *retrahere*, or *re*, *in*, and *trahere*, becauſe the ſeam is drawn in or covered. We are told*, that in the Eaſt Indies, if a piece of fine muſlin be torn and afterwards mended by the fine-drawers, it will be impoſſible to diſcover where the rent was. In this country the dexterity of the fine-drawers is not ſo great as that of thoſe in the eaſt; but it is ſtill ſuch as to enable them to defraud the revenue, by ſewing a head or ſlip of Engliſh cloth on a piece of Dutch, Spaniſh, or other foreign cloth: or a ſlip of foreign cloth on a piece of Engliſh, ſo as to paſs the whole as of a piece; and by that means avoid the duties, penalties, &c. The trick was firſt diſcovered in France by M. Savary.

Rentering, in tapeſtry, is the working new warp into a piece of damaged tapeſtry, whether eaten by the rats or otherwiſe deſtroyed, and on this warp to reſtore the ancient pattern or deſign. The warp is to be of woollen, not linen. Among the titles of the French tapeſtry makers is included that of renterers. Fine-drawing is particularly uſed for a rent or hole, which happens in dreſſing or preparing a piece of cloth artfully ſewed up or mended with ſilk. All fine-drawings are reckoned defects or blemiſhes; and ſhould be allowed for in the price of the piece.

RENVERSE, inverted, in heraldry, is when any thing is ſet with the head downwards, or contrary to its natural way of ſtanding. Thus, a chevron renverſé, is a chevron with the point downwards. They uſe alſo the ſame term when a beaſt is laid on its back.

RENUNCIATION, the act of renouncing, abdicating, or relinquiſhing, any right, real or pretended.

REPARTEE, a ſmart, ready reply, eſpecially in matters of wit, humour, or raillery. See Raillery.

REPEALING, in law, the revoking or annulling of a ſtatute or the like.

No act of parliament ſhall be repealed the ſame ſeſſion in which it was made. A deed or will may be repealed in part, and ſtand good for the reſt. It is held that a pardon of felony may be repealed on diſproving the ſuggeſtion thereof.

REPELLENTS, in medicine, remedies which drive back a morbid humour into the maſs of blood, from whence it was unduly ſecreted.

REPENTANCE, in general, means ſorrow for any thing paſt. In theology it means ſuch a ſorrow for ſin as produces newneſs of life, or ſuch a conviction of the evil and danger of a ſinful courſe as is ſufficient to produce ſhame and ſorrow in the review of it, and effectual reſolutions of amendment. In this ſenſe the evangelical writers uſe μετανοια and μετανοεω. See Penitence and Theology.

REPERCUSSION, in muſic, a frequent repetition of the ſame ſound.

REPERTORY, a place wherein things are orderly diſpoſed, ſo as to be eaſily found when wanted. The indices of books are repertories, ſhowing where the matters ſought for are treated of. Common-place books are alſo kinds of repertories.

REPETITION, the reiterating of an action.

Repetition, in muſic, denotes a reiterating or playing over again the ſame part of a compoſition, whether it be a whole ſtrain, part of a ſtrain, or double ſtrain, &c.

When the ſong ends with a repetition of the firſt ſtrain, or part of it, the repetition is denoted by *da capo*, or D. C. *i. e.* "from the beginning."

Repetition, in rhetoric, a figure which gracefully and emphatically repeats either the ſame word, or the ſame ſenſe in different words. See Oratory, n° 67—80.

The nature and deſign of this figure is to make deep impreſſions on thoſe we addreſs. It expreſſes anger and indignation, full aſſurance of what we affirm, and a vehement concern for what we have eſpouſed.

REPHIDIM (anc. geog.), a ſtation of the Iſraelites near mount Horeb, where they murmured for want of water; when Moſes was ordered to ſmite the rock Horeb, upon which it yielded water. Here Joſhua diſcomfited the Amalekites. This rock, out of which Moſes brought water, is a ſtone of a prodigious height and thickneſs, riſing out of the ground; on two ſides of which are ſeveral holes, by which the water ran. (Thevenot.)

REPLEGIARE, in law, ſignifies to redeem a thing taken or detained by another, by putting in legal ſureties.

De homine REPLEGIANDO. See Homine.

REPLEVIN, in law, a remedy granted on a diſtreſs, by which the firſt poſſeſſor has his goods reſtored to him again, on his giving ſecurity to the ſheriff that he will purſue his action againſt the party diſtraining, and return the goods or cattle if the taking them ſhall be adjudged lawful.

In a replevin the perſon diſtrained becomes plaintiff; and the perſon diſtraining is called the *defendant* or *avowant*, and his juſtification an *avowry*.

At the common law replevins are by writ, either out of the king's-bench or common-pleas; but by ſtatute, they are by plaint in the ſheriff's court, and court-baron, for a perſon's more ſpeedily obtaining the goods diſtrained.

Replevy & Reprieve.

If a plaint in replevin be removed into the court of king's bench, &c. and the plaintiff makes default and becomes non-suit, or judgment is given against him, the defendant in replevin shall have the writ of *retorno habendo* of the goods taken in distress. See the next article.

REPLEVY, in law, is a tenant's bringing a writ of replevin, or *replegiari facias*, where his goods are taken by distress for rent; which must be done within five days after the distress, otherwise at the five days end they are to be appraised and sold.

This word is also used for bailing a person, as in the case of a *homine replegiando*.

REPORT, the relation made upon oath, by officers or persons appointed to visit, examine, or estimate the state, expences, &c. of any thing.

Report, in law, is a public relation of cases judicially argued, debated, resolved, or adjudged in any of the king's courts of justice, with the causes and reasons of the same, as delivered by the judges. Also when the court of chancery, or any other court, refers the stating of a case, or the comparing of an account, to a master of chancery, or other referee, his certificate thereon is called a *report*.

REPOSE, in poetry, &c. the same with rest and pause. See Rest, &c.

Repose, in painting, certain masses or large assemblages of light and shade, which being well conducted, prevent the confusion of objects and figures, by engaging and fixing the eye so as it cannot attend to the other parts of the painting for some time; and thus leading it to consider the several groups gradually, proceeding as it were from stage to stage.

REPRESENTATION, in the drama, the exhibition of a theatrical piece, together with the scenes, machinery, &c.

REPRESENTATIVE, one who personates or supplies the place of another, and is invested with his right and authority. Thus the house of commons are the representatives of the people in parliament. See Commons and Parliament.

REPRIEVE, in criminal law (from *reprendre*, "to take back"), is the withdrawing of a sentence for an interval of time; whereby the execution is suspended. See Judgment.

Blackst. Comment.

This may be, first, *ex arbitrio judicis*, either before or after judgment: as, where the judge is not satisfied with the verdict, or the evidence is suspicious, or the indictment is insufficient, or he is doubtful whether the offence be within clergy; or sometimes if it be a small felony, or any favourable circumstances appear in the criminal's character, in order to give room to apply to the crown for either an absolute or conditional pardon. These arbitrary reprieves may be granted or taken off by the justices of gaol-delivery, although their session be finished, and their commission expired: but this rather by common usage than of strict right.

Reprieves may also be *ex necessitate legis*: as where a woman is capitally convicted, and pleads her pregnancy. Though this is no cause to stay judgment, yet it is to respite the execution till she be delivered. This is a mercy dictated by the law of nature, *in favorem prolis*; and therefore no part of the bloody proceedings in the reign of Queen Mary hath been more justly detested, than the cruelty that was exercised in the island of Guernsey, of burning a woman big with child; and, when through the violence of the flames the infant sprang forth at the stake, and was preserved by the bystanders, after some deliberations of the priests who assisted at the sacrifice, they cast it into the fire as a young heretic. A barbarity which they never learned from the laws of ancient Rome; which direct, with the same humanity as our own, *quod prægnantis mulieris damnatæ pœna differatur, quoad pariat*: which doctrine has also prevailed in England, as early as the first memorials of our law will reach. In case this plea be made in stay of execution, the judge must direct a jury of twelve matrons or discreet women to inquire into the fact: and if they bring in their verdict *quick with child* (for barely *with child*, unless it be alive in the womb, is not sufficient), execution shall be staid generally till the next session; and so from session to session, till either she is delivered, or proves by the course of nature not to have been with child at all. But if she once hath had the benefit of this reprieve, and been delivered, and afterwards becomes pregnant again, she shall not be intitled to the benefit of a farther respite for that cause. For she may now be executed before the child is quick in the womb; and shall not, by her own incontinence, evade the sentence of justice.

Another cause of regular reprieve is, if the offender become *non compos* between the judgment and the award of execution: for regularly, though a man be *compos* when he commits a capital crime, yet if he becomes *non compos* after, he shall not be indicted; if after indictment, he shall not be convicted; if after conviction, he shall not receive judgment; if after judgment, he shall not be ordered for execution: for *furiosus solo furore punitur*; and the law knows not but he might have offered some reason, if in his senses, to have stayed these respective proceedings. It is therefore an invariable rule, when any time intervenes between the attainder and the award of execution, to demand of the prisoner what he hath to allege why execution should not be awarded against him; and, if he appears to be insane, the judge in his discretion may and ought to reprieve him. Or, the party may plead in bar of execution; which plea may be either pregnancy, the king's pardon, an act of grace, or diversity of person, *viz.* that he is not the same that was attainted, and the like. In this last case a jury shall be impanelled to try this collateral issue, namely, the identity of his person; and not whether guilty or innocent, for that has been decided before. And in these collateral issues the trial shall be *instanter*; and no time allowed the prisoner to make his defence or produce his witnesses, unless he will make oath that he is not the person attainted: neither shall any peremptory challenges of the jury be allowed the prisoner, though formerly such challenges were held to be allowable whenever a man's life was in question. If neither pregnancy, insanity, non-identity, nor other plea, will avail to avoid the judgment, and stay the execution consequent thereupon, the last and surest resort is in the king's most gracious pardon; the granting of which is the most amiable prerogative of the crown. See the article Pardon.

REPRISALS, a right which princes claim of taking from their enemies any thing equivalent to what they unjustly detain from them or their subjects. For as the delay of making war may sometimes be detrimental

mental to individuals who have suffered by depredations from foreign potentates, our laws have in some respects armed the subject with powers to impel the prerogative; by directing the ministers of the crown to issue letters of marque and reprisal upon due demand: the prerogative of granting which is nearly related to, and plainly derived from, that other of making war; this being indeed only an incomplete state of hostilities, and generally ending in a formal denunciation of war. These letters are grantable by the law of nations, whenever the subjects of one state are oppressed and injured by those of another; and justice is denied by that state to which the oppressor belongs. In this case letters of marque and reprisal (words used as synonymous; and signifying, the latter a taking in return, the former the passing the frontiers in order to such taking) may be obtained, in order to seize the bodies or goods of the subjects of the offending state, until satisfaction be made, wherever they happen to be found. And indeed this custom of reprisals seems dictated by nature herself; for which reason we find in the most ancient times very notable instances of it. But here the necessity is obvious of calling in the sovereign power, to determine when reprisals may be made; else every private sufferer would be a judge in his own cause. In pursuance of which principle, it is with us declared by the stat. 4 Hen. V. c. 7. that, if any subjects of the realm are oppressed in time of truce by any foreigners, the king will grant marque in due form, to all that feel themselves grieved. Which form is thus directed to be observed: the sufferer must first apply to the lord privy-seal, and he shall make out letters of request under the privy-seal; and if after such request of satisfaction made, the party required do not within convenient time make due satisfaction or restitution to the party grieved, the lord-chancellor shall make him out letters of marque under the great seal; and by virtue of these he may attack and seize the property of the aggressor nation, without hazard of being condemned as a robber or pirate.

Reprisal, or *Recaption*, is a species of remedy allowed to an injured person. This happens when any one hath deprived another of his property in goods or chattels personal, or wrongfully detains one's wife, child, or servant: in which case the owner of the goods, and the husband, parent, or master, may lawfully claim and retake them, wherever he happens to find them; so it be not in a riotous manner, or attended with a breach of the peace. The reason for this is obvious; since it may frequently happen that the owner may have this only opportunity of doing himself justice: his goods may be afterwards conveyed away or destroyed; and his wife, children, or servants, concealed or carried out of his reach; if he had no speedier remedy than the ordinary process of law. If therefore he can so contrive it as to gain possession of his property again, without force or terror, the law favours and will justify his proceeding. But, as the public peace is a superior consideration to any one man's private property; and as, if individuals were once allowed to use private force as a remedy for private injuries, all social justice must cease, the strong would give law to the weak, and every man would revert to a state of nature; for these reasons it is provided, that this natural right of recaption shall never be exerted, where such exertion must occasion strife and bodily contention, or endanger the peace of society. If, for instance, my horse is taken away, and I find him in a common, a fair, or a public inn, I may lawfully seize him to my own use: but I cannot justify breaking open a private stable, or entering on the grounds of a third person, to take him, except he be feloniously stolen; but must have recourse to an action at law.

Reprobation, Reproduction.

REPROBATION, in theology, means the act of abandoning, or state of being abandoned, to eternal destruction, and is applied to that decree or resolve which God has taken from all eternity to punish sinners who shall die in impenitence; in which sense it is directly opposed to election. When a sinner is so hardened as to feel no remorse or misgiving of conscience, it is considered as a sign of reprobation; which by the casuists has been distinguished into positive and negative. The first is that whereby God is supposed to create men with a positive and absolute resolution to damn them eternally. This opinion is countenanced by St Augustine and other Christian fathers, and is a peculiar tenet of Calvin and most of his followers. The church of England, in *The thirty-nine Articles*, teaches something like it; and the church of Scotland, in the *Confession of Faith*, maintains it in the strongest terms. But the notion is generally exploded, and is believed by no rational divine in either church, being totally injurious to the justice of the Deity. Negative or conditional reprobation is that whereby God, though he has a sincere desire to save men, and furnishes them with the necessary means, so that all if they will may be saved, yet sees that there are many who will not be saved by the means, however powerful, that are afforded them; tho' by other means which the Deity sees, but will not afford them, they might be saved. Reprobation respects angels as well as men, and respects the latter either fallen or unfallen. See Predestination.

REPRODUCTION, is usually understood to mean the restoration of a thing before existing, and since destroyed. It is very well known that trees and plants may be raised from slips and cuttings; and some late observations have shown, that there are some animals which have the same property. The polype * was the first instance we had of this; but we had scarce time to wonder at the discovery Mr Trembley had made, when Mr Bonett discovered the same property in a species of water-worm. Amongst the plants which may be raised from cuttings, there are some which seem to possess this quality in so eminent a degree, that the smallest portion of them will become a complete tree again.

* See Polypus.

It deserves inquiry, whether or not the great Author of nature, when he ordained that certain insects, as these polypes and worms, should resemble those plants in that particular, allowed them this power of being reproduced in the same degree? or, which is the same thing, whether this reproduction will or will not take place in whatever part the worm is cut? In order to try this, Mr Bonett entered on a course of many experiments on the water-worms which have this property. These are, at their common growth, from two to three inches long, and of a brownish colour, with a cast of reddish. From one of these worms he cut off the head and tail, taking from each extremity only a small piece of a twelfth of an inch in length; but neither of these pieces were able to reproduce what was wanting. They both perished in about 24 hours; the tail first,

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and afterwards the head. As to the body of the worm from which these pieces were separated, it lived as well as before, and seemed indeed to suffer nothing by the loss, the head-part being immediately used as if the head was thereon, boring the creature's way into the mud. There are, besides this, two other points in which the reproduction will not take place; the one of these is about the fifth or sixth ring from the head, and the other at the same distance from the tail; and in all probability the condition of the great artery in these parts is the cause of this.

What is said of the want of the reproductive power of these parts relates only to the head and tail ends; for as to the body, it feels very little inconvenience from the loss of what is taken off, and very speedily reproduces those parts. Where then does the principle of life reside in such worms, which, after having their heads cut off, will have not only the same motions, but even the inclinations, that they had before? and yet this difficulty is very small, compared to several others which at the same time offer themselves to our reason. Is this wonderful reproduction of parts only a natural consequence of the laws of motion? or is there lodged in the body of the creature a chain of minute buds or shoots, a sort of little embryos, already formed and placed in such parts where the reproductions are to begin? Are these worms only mere machines? or are they, like more perfect animals, a sort of compound, the springs of whose motions are actuated or regulated by a sort of soul? And if they have themselves such a principle, how is it that this principle is multiplied, and is found in every separate piece? Is it to be granted, that there are in these worms, not a single soul (if it is to be so called) in each, but that each contains as many souls as there are pieces capable of reproducing perfect animals? Are we to believe with Malpighi, that these sorts of worms are all heart and brain from one end to the other! This may be; but yet if we knew that it was so, we should know in reality but very little the more for knowing it: and it seems, after all, that in cases of this kind we are only to admire the works of the great Creator, and sit down in silence.

The nice sense of feeling in spiders has been much talked of by naturalists; but it appears that these worms have yet somewhat more surprising in them in regard to this particular. If a piece of stick, or any other substance, be brought near them, they do not stay for its touching them, but begin to leap and frisk about as soon as it comes towards them. There want, however, some farther experiments to ascertain whether this be really owing to feeling or to sight; for though we can discover no distinct organs of sight in these creatures, yet they seem affected by the light of the sun or a candle, and always frisk about it in the same manner at the approach of either; nay, even the moon-light has some effect upon them.

A twig of willow, poplar, or many other trees, being planted in the earth, takes root, and becomes a tree, every piece of which will in the same manner produce other trees. The case is the same with these worms: they are cut to pieces, and these several pieces become perfect animals; and each of these may be again cut into a number of pieces, each of which will in the same manner produce an animal. It had been supposed by some that these worms were oviparous: but Mr Bonett, on cutting one of them to pieces, having observed a slender substance, resembling a small filament, to move at the end of one of the pieces, separated it; and on examining it with glasses, found it to be a perfect worm, of the same form with its parent, which lived and grew larger in a vessel of water into which he put it. These small bodies are easily divided, and very readily complete themselves again, a day usually serving for the production of a head to the part that wants one; and, in general, the smaller and slenderer the worms are, the sooner they complete themselves after this operation. When the bodies of the large worms are examined by the microscope, it is very easy to see the appearance of the young worms alive, and moving about within them: but it requires great precision and exactness to be certain of this; since the ramifications of the great artery have very much the appearance of young worms, and they are kept in a sort of continual motion by the systoles and diastoles of the several portions of the artery, which serve as so many hearts. It is very certain, that what we force in regard to these animals by our operations, is done also naturally every day in the brooks and ditches where they live. A curious observer will find in these places many of them without heads or tails, and some without either; as also other fragments of various kinds, all which are then in the act of completing themselves: but whether accidents have reduced them to this state, or they thus purposely throw off parts of their own body for the reproduction of more animals, it is not easy to determine. They are plainly liable to many accidents, by which they lose the several parts of their body, and must perish very early if they had not a power of reproducing what was lost: they often are broken into two pieces, by the resistance of some hard piece of mud which they enter; and they are subject to a disease, a kind of gangrene, rotting off the several parts of their bodies, and must inevitably perish by it, had they not this surprising property.

This worm was a second instance, after the polype, of the surprising power in an animal of recovering its most essential parts when lost. But Nature does not seem to have limited her beneficence in this respect to these two creatures. Mr Bonett tried the same experiments on another species of water-worm, differing from the former in being much thicker. This kind of worm, when divided in the summer-season, very often shows the same property: for if it be cut into three or four pieces, the pieces will lie like dead for a long time, but afterwards will move about again; and will be found in this state of rest to have recovered a head, or a tail, or both. After recovering their parts, they move very little; and, according to this gentleman's experiments, seldom live more than a month.

It should seem, that the more difficult success of this last kind of worm, after cutting, and the long time it takes to recover the lost parts, if it do recover them at all, is owing to its thickness; since we always find in that species of worms which succeeds best of all, that those which are thinnest always recover their parts much sooner than the others.

The water-insects also are not the only creatures which have this power of recovering their lost parts. The earth affords us some already discovered to grow in this manner from their cuttings, and these not less deserving our admiration than those of the water: the common

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common earth-worms are of this kind. Some of these worms have been divided into two, others into three or four pieces; and some of these pieces, after having passed two or three months without any appearance of life or motion, have then begun to reproduce a head or tail or both. The reproduction of the anus, after such a state of rest, is no long work; a few days do it: but it is otherwise with the head, that does not seem to perform its functions in the divided pieces till about seven months after the separation. It is to be observed, that in all these operations both on earth and water-worms, the hinder part suffers greatly more than the fore part in the cutting; for it always twists itself about a long time, as if actuated by strong convulsions; whereas the head usually crawls away without the appearance of any great uneasiness.

The reproduction of several parts of lobsters, crabs, &c. makes also one of the great curiosities in natural history. That, in lieu of an organical part of an animal broken off, another shall rise perfectly like it, may seem inconsistent with the modern system of generation, where the animal is supposed to be wholly formed in the egg. Yet has the matter of fact been well attested by the fishermen, and even by several virtuosos who have taken the point into examination, particularly M. de Reaumur and M. Perrault, whose skill and exactness in things of this nature will hardly be questioned. The legs of lobsters, &c. consist each of five articulations: now, when any of the legs happen to break by any accident, as in walking, &c. which frequently happens, the fracture is always found to be in a part near the fourth articulation; and what they thus lose is precisely reproduced some time afterwards; that is, a part of a leg shoots out, consisting of four articulations, the first whereof has two claws as before; so that the loss is entirely repaired.

If a lobster's leg be broken off by design at the fourth or fifth articulation, what is thus broken off always comes again; but it is not so if the fracture be made in the first, second, or third articulation. In those cases, the reproduction is very rare if things continue as they are. But what is exceedingly surprising is, that they do not; for, upon visiting the lobster maimed in these barren and unhappy articulations, at the end of two or three days, all the other articulations are found broken off to the fourth; and it is suspected they have performed the operation on themselves, to make the reproduction of a leg certain.

The part reproduced is not only perfectly like that retrenched, but also, in a certain space of time, grows equal to it. Hence it is that we frequently see lobsters, which have their two big legs unequal, and that in all proportions. This shows the smaller leg to be a new one.

A part thus reproduced being broken, there is a second reproduction. The summer, which is the only season of the year when the lobsters eat, is the most favourable time for the reproduction. It is then performed in four or five weeks; whereas it takes up eight or nine months in any other season. The small legs are sometimes reproduced, but more rarely, as well as more slowly, than the great ones: the horns do the same. The experiment is most easily tried on the common crab. See METAPHYSICS, p. 574. note (F); and PHYSIOLOGY, n° 261.

Reptiles || Repulsion.

REPTILES, in natural history, a kind of animals denominated from their creeping or advancing on the belly. Or reptiles are a genus of animals and insects, which, instead of feet, rest on one part of the body, while they advance forward with the rest. Such are earthworms, snakes, caterpillars, &c. Indeed, most of the class of reptiles have feet; only those very small, and the legs remarkably short in proportion to the bulk of the body.

Naturalists observe a world of artful contrivance for the motion of reptiles. Thus, particularly in the earthworm, Dr Willis tells us, the whole body is only a chain of annular muscles; or, as Dr Derham says, it is only one continued spiral muscle, the orbicular fibres whereof being contracted, render each ring narrower and longer than before; by which means it is enabled, like the worm of an augre, to bore its passage into the earth. Its reptile motion might also be explained by a wire wound on a cylinder, which when slipped off, and one end extended and held fast, will bring the other near to it. So the earthworm having shot out or extended his body (which is with a wreathing), it takes hold by these small feet it hath, and so contracts the hinder part of its body. Dr Tyson adds, that when the forepart of the body is stretched out, and applied to a plane at a distance, the hind part relaxing and shortening is easily drawn towards it as a centre.

Its feet are disposed in a quadruple row the whole length of the worm, with which, as with so many hooks, it fastens down sometimes this and sometimes that part of the body to the plane, and at the same time stretches out or drags after it another.

The creeping of serpents is effected after a somewhat different manner; there being a difference in their structure, in that these last have a campages of bones articulated together.

The body here is not drawn together, but as it were complicated; part of it being applied on the rough ground, and the rest ejaculated and shot from it, which being set on the ground in its turn, brings the other after it. The spine of the back variously wreathed has the same effect in leaping, as the joints in the feet of other animals; they make their leaps by means of muscles, and extend the plicæ or folds. See ZOOLOGY.

REPUBLIC, or commonwealth, a popular state or government; or a nation where the people have the government in their own hands. See GOVERNMENT, ARISTOCRACY, DEMOCRACY, and MONARCHY.

REPUBLIC of Letters, a phrase used collectively of the whole body of the studious and learned people.

REPUDIATION, in the civil law, the act of divorcing. See DIVORCE.

REPULSION, in physics, that property of bodies whereby they recede from each other, and, on certain occasions, mutually avoid coming into contact.

REPULSION, as well as attraction, has of late been considered as one of the primary qualities of all matter, and has been much used in explaining the phenomena of nature: thus the particles of air, fire, steam, electric fluid, &c. are all said to have a repulsive power with respect to one another.—That this is the case with the air, and vapour of all kinds, is certain; because when they are compressed into a small space, they expand with

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with great force: but as to fire, light, and electricity, our experiments fail; nay, the supposition of a repulsive power among the particles of the electric fluid is inconsistent with the phenomena, as has been demonstrated under the article ELECTRICITY, Sect. V. and VI. Even in those fluids, air and steam, where a repulsive power most manifestly exists, it is demonstrable that the repulsion cannot be a *primary* quality, since it can be increased to a great degree by heat, and diminished by cold: but it is impossible that a *primary* quality of matter can be increased or diminished by any external circumstances whatever; for whatever property depends upon external circumstances, is not a primary but a secondary one.—The repulsion of electrified bodies is explained under the article ELECTRICITY: that of others is less subject to investigation; and the most that can be said concerning it is, that in many cases it seems to be the consequence of a modification of fire, and in others of electricity.

REPUTATION means credit, honour, or the character of good; and since we are destined to live in society, is necessary and useful more or less to every human being. There is no man, except one who is overgrown with pride and self-conceit, or whose actions are bad, but pays attention to his reputation, and wishes to possess the good opinion of his neighbours or the world. The love of reputation and of fame are most powerful springs of action; but though they proceed from the same principle, the means of attaining them, and the effects of them, are not altogether the same.

Many means indeed serve equally to support the reputation and to increase the fame, differing only in degrees; others, however, belong peculiarly either to the one or to the other. An honest reputation is within the reach of the bulk of mankind; it is obtained by the social virtues and the constant practice of the common duties of life. This kind of reputation indeed is neither extensive nor brilliant, but it is often the most useful in point of happiness. Wit, talents, and genius, are the necessary requisites for fame; but those advantages are perhaps less real in their consequences than those arising from a good reputation. What is of real use costs little; things rare and splendid require the greatest labour to procure, and yield perhaps a more ideal happiness.

Fame can be possessed, comparatively speaking, but by few individuals; as it requires either very superior abilities, supported by great efforts, or very fortunate circumstances. It is constituted by the applause of mankind, or at least by that of a single nation; whilst reputation is of much less extent, and arises from different circumstances. That reputation which is founded on deceit and artifice is never solid; and the most honourable will always be found to be the most useful. Every one may safely, and indeed ought to, aspire to the consideration and praise due to his condition and merit; but he who aspires to more, or who seeks it by dishonest means, will at length meet with contempt.

REQUEST, in law, a supplication or petition preferred to a prince, or to a court of justice; begging relief in some conscionable cases where the common law grants no immediate redress.

Court of Requests (curia requisitionum) was a court of equity, of the same nature with the court of chancery, but inferior to it; principally instituted for the relief of such petitioners as in conscionable cases addressed themselves by supplication to his majesty. Of this court the lord privy-seal was chief judge, assisted by the masters of requests; and it had beginning about the 9 Hen. VII. according to Sir Julius Cæsar's tractate upon this subject: though Mr Gwyn, in his preface to his Readings, saith it began from a commission first granted by king Henry VIII.—This court, having assumed great power to itself, so that it became burthensome, *Mich.* anno 40 and 41 *Eliz.* in the court of common-pleas it was adjudged upon solemn argument, that the court of requests was no court of judicature, &c. and by stat. 16 & 17 Car I. c. 10. it was taken away.

Request. Blackst. Comment.

There are still courts of requests, or courts of conscience, constituted in London and other trading and populous districts for the recovery of small debts. The first of these was established in London so early as the reign of Henry VIII. by an act of their common council; which however was certainly insufficient for that purpose, and illegal, till confirmed by statute 3 Jac. I. c. 15. which has since been explained and amended by statute 14 Geo. II. c. 10. The constitution is this: two aldermen and four commoners sit twice a week to hear all causes of debt not exceeding the value of forty shillings; which they examine in a summary way, by the oath of the parties or other witnesses, and make such order therein as is consonant to equity and good conscience. The time and expence of obtaining this summary redress are very inconsiderable, which make it a great benefit to trade; and thereupon divers trading towns and other districts have obtained acts of parliament for establishing in them courts of conscience upon nearly the same plan as that in the city of London.

By 25 Geo. III. c. 45. (which is confined to prosecutions in courts of conscience in London, Middlesex, and the borough of Southwark), and by 26 Geo. III. c. 38. (which extends the provisions of the former act to all other courts instituted for the recovery of small debts), it is enacted, that after the first day of September 1786, no person whosoever, being a debtor or defendant, and who has been or shall be committed to any gaol or prison by order of any court or commissioners authorised by any act or acts of parliament for constituting or regulating any court or courts for the recovery of small debts, where the debt does not exceed twenty shillings, shall be kept or continued in custody, on any pretence whatsoever, more than twenty days from the commencement of the last mentioned act; or from the time of his, her, or their commitment to prison: and where the original debt does not amount to or exceed the sum of forty shillings, more than forty days from the commencement of the said act, or from the time of his, her, or their commitment as aforesaid; and all gaolers are thereby required to discharge such persons accordingly. And by sect. 2. if it shall be proved to the satisfaction of the court, that any such debtor has money or goods which he has wilfully and fraudulently concealed; in that case the court shall have power to enlarge the aforesaid times of imprisonment for debts under twenty shillings, to any time not exceeding thirty days, and for debts under forty shillings, to any time not exceeding sixty days; which said ground of farther detention shall be specified in the said commitment. And that (by sect. 3.) at the expiration of the said respective times of imprisonment, every such person shall immediately be discharged, without paying any sum of money,

money, or other reward or gratuity whatsoever, to the gaoler of such gaol on any pretence whatsoever; and every gaoler demanding or receiving any fee for the discharge of any such person, or keeping any such person prisoner after the said respective times limited by the said act, shall forfeit five pounds, to be recovered in a summary way before two justices of the peace, one moiety thereof to be paid to the overseers of the poor of the parish where the offence shall be committed, and the other to the informer.

REQUIEM, in the Romish history, a mass sung for the rest of the soul of a person deceased.

RESCISSION, in the civil law, an action intended for the annulling or setting aside any contract, deed, &c.

RESCRIPT, an answer delivered by an emperor, or a pope, when consulted by particular persons on some difficult question or point of law, to serve as a decision thereof.

RESEDA, DYER'S-WEED, *Yellow-weed*, *Weld*, or *Wild-woad*: A genus of the order of trigynia, belonging to the dodecandria class of plants; and in the natural method ranking under the 54th order, *Miscellaneæ*. The calyx is monophyllous and partite; the petals lanciniated; the capsule unilocular, and opening at the mouth. There are 11 species; of which the most remarkable is the luteola or common dyer's weed, growing naturally in waste places in many parts of Britain. The young leaves are often undulated; the stalk is a yard high, or more, terminated with a long naked spike of yellowish-green flowers: the plant is cultivated and much used for dying silk and wool of a yellow colour. The great recommendation of the plant is, that it will grow with very little trouble, without dung, and on the very worst soils. For this reason it is commonly sown with, or immediately after, barley or oats, without any additional care, except drawing a bush over it to harrow it in. The reaping of the corn does it little or no hurt, as it grows but little the first year; and the next summer it is pulled and dried like flax. Much care and nicety, however, is requisite, so as not to injure either the seed or stalk; or, which sometimes happens, damaging both, by letting it stand too long, or pulling it too green. To avoid these inconveniences, a better method of culture has been devised. This new method is to plough and harrow the ground very fine, without dung, as equally as possible, and then sowing about a gallon of seed, which is very small, upon an acre, some time in the month of August. In about two months it will be high enough to hoe, which must be carefully done, and the plants left about six inches asunder. In March it is to be hoed again, and this labour is to be repeated a third time in May. About the close of June, when the flower is in full vigour, and the stalk is become of a greenish-yellow, it should be pulled; a sufficient quantity of stems being left growing for seed till September. By this means the flower and stalk, both of them being carefully dried, will sell at a good price to the dyers, who employ it constantly, and in large quantities; add to this, that the seed being ripe and in perfect order, will yield a very considerable profit. In a tolerable year, when the seasons have not been unfavourable, the advantages derived from this vegetable will answer very well; but if the summer should be remarkably fine, and proper care is taken in getting it in, there will be a very large produce upon an acre. The crop being, as has been shown, so early removed, the ground may be conveniently prepared for growing wheat the next year. Upon the whole, weld is in its nature a very valuable commodity in many respects, as it serves equally for woollen, linen, or silk; dyeing not only a rich and lasting yellow, but also, properly managed, all the different shades of yellow with brightness and beauty; and if these be previously dipped blue, they are by the weld changed into a very pleasing green, which our artists can also diversify into a great variety of shades.

RESEMBLANCE, *and* DISSIMILITUDE, the relations of likeness and difference among objects. See COMPARISON.

The connection that man hath with the beings around him, requires some acquaintance with their nature, their powers, and their qualities, for regulating his conduct. For acquiring a branch of knowledge so essential to our well-being, motives alone of reason and interest are not sufficient: nature hath providentially superadded curiosity, a vigorous propensity, which never is at rest. This propensity alone attaches us to every new object †; and incites us to compare objects, in order to discover their differences and resemblances.

Elem. of Criticism.

† See *Novelty.*

Resemblance among objects of the same kind, and dissimilitude among objects of different kinds, are too obvious and familiar to gratify our curiosity in any degree: its gratification lies in discovering differences among things where resemblance prevails, and resemblances where difference prevails. Thus a difference in individuals of the same kind of plants or animals, is deemed a discovery, while the many particulars in which they agree are neglected; and in different kinds, any resemblance is greedily remarked, without attending to the many particulars in which they differ.

A comparison of the former neither tends to gratify our curiosity, nor to set the objects compared in a stronger light: two apartments in a palace, similar in shape, size, and furniture, make separately as good a figure as when compared; and the same observation is applicable to two similar compartments in a garden: on the other hand, oppose a regular building to a fall of water, or a good picture to a towering hill, or even a little dog to a large horse, and the contrast will produce no effect. But a resemblance between objects of different kinds, and a difference between objects of the same kind, have remarkably an enlivening effect. The poets, such of them as have a just taste, draw all their similies from things that in the main differ widely from the principal subject; and they never attempt a contrast, but where the things have a common genus, and a resemblance in the capital circumstances: place together a large and a small-sized animal of the same species, the one will appear greater, the other less, than when viewed separately: when we oppose beauty to deformity, each makes a greater figure by the comparison. We compare the dress of different nations with curiosity, but without surprise; because they have no such resemblance in the capital parts as to please us by contrasting the smaller parts. But a new cut of a sleeve, or of a pocket, enchants by its novelty; and, in opposition to the former fashion, raises some degree of surprise.

That resemblance and dissimilitude have an enliven-

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ing effect upon objects of sight, is made sufficiently evident; and that they have the same effect upon objects of the other senses, is also certain. Nor is that law confined to the external senses; for characters contrasted make a greater figure by the opposition: Iago, in the tragedy of Othello, says,

> He hath a daily beauty in his life
> That makes me ugly.

The character of a fop, and of a rough warrior, are nowhere more successfully contrasted than in Shakespeare:

> *Hotspur.* My liege, I did deny no prisoners;
> But I remember, when the fight was done,
> When I was dry with rage, and extreme toil,
> Breathless and faint, leaning upon my sword,
> Came there a certain lord, neat, trimly dress'd,
> Fresh as a bridegroom; and his chin, new-reap'd,
> Show'd like a stubble-land at harvest-home.
> He was perfumed like a milliner;
> And 'twixt his finger and his thumb he held
> A pouncet-box, which ever and anon
> He gave his nose:—and still he smil'd and talk'd;
> And as the soldiers bare dead bodies by,
> He call'd them untaught knaves, unmannerly,
> To bring a slovenly, unhandsome corse
> Betwixt the wind and his nobility.
> With many holiday and lady terms
> He question'd me: among the rest, demanded
> My pris'ners, in your majesty's behalf.
> I then, all smarting with my wounds; being gall'd
> To be so pester'd with a popinjay,
> Out of my grief, and my impatience,
> Answer'd, neglectingly, I know not what:
> He should, or should not; for he made me mad,
> To see him shine so brisk, and smell so sweet,
> And talk so like a waiting gentlewoman,
> Of guns, and drums, and wounds, (God save the mark!)
> And telling me, the sovereign'st thing on earth
> Was parmacity for an inward bruise;
> And that it was great pity, so it was,
> This villanous saltpetre should be digg'd
> Out of the bowels of the harmless earth,
> Which many a good, tall fellow had destroy'd
> So cowardly: and but for these vile guns,
> He would himself have been a soldier.——
>
> *First part, Henry* IV. *act* 1. *sc.* 4

Passions and emotions are also enflamed by comparison. A man of high rank humbles the bystanders even to annihilate them in their own opinion: Cæsar, beholding the statue of Alexander, was greatly mortified, that now, at the age of 32, when Alexander died, he had not performed one memorable action.

Our opinions also are much influenced by comparison. A man whose opulence exceeds the ordinary standard is reputed richer than he is in reality; and wisdom or weakness, if at all remarkable in an individual, is generally carried beyond the truth.

The opinion a man forms of his present distress is heightened by contrasting it with his former happiness:

> ——————————Could I forget
> What I have been, I might the better bear
> What I'm destin'd to. I'm not the first
> That have been wretched: but to think how much
> I have been happier.
>
> *Southern's Innocent Adultery, act* 2.

The distress of a long journey makes even an indifferent inn agreeable: and, in travelling, when the road is good, and the horseman well covered, a bad day may be agreeable, by making him sensible how snug he is.

The same effect is equally remarkable, when a man opposes his condition to that of others. A ship tossed about in a storm, makes the spectator reflect upon his own ease and security, and puts these in the strongest light.

A man in grief cannot bear mirth; it gives him a more lively notion of his unhappiness, and of course makes him more unhappy. Satan, contemplating the beauties of the terrestrial paradise, has the following exclamation:

> With what delight could I have walk'd thee round,
> If I could joy in ought, sweet interchange
> Of hill and valley, rivers, woods, and plains,
> Now land, now sea, and shores with forest crown'd,
> Rocks, dens, and caves! but I in none of these
> Find place or refuge; and the more I see
> Pleasures about me, so much more I feel
> Torment within me, as from the hateful siege
> Of contraries: all good to me becomes
> Bane, and in heav'n much worse would be my state.
>
> *Paradise Lost, book* 9. *l.* 114.

The appearance of danger gives sometimes pleasure, sometimes pain. A timorous person upon the battlements of a high tower, is seized with fear, which even the consciousness of security cannot dissipate. But upon one of a firm head, this situation has a contrary effect: the appearance of danger heightens, by opposition, the consciousness of security, and consequently the satisfaction that arises from security: here the feeling resembles that above-mentioned, occasioned by a ship labouring in a storm.

The effect of magnifying or lessening objects by means of comparison is to be attributed to the influence of passion over our opinions. This will evidently appear by reflecting in what manner a spectator is affected, when a very large animal is for the first time placed beside a very small one of the same species. The first thing that strikes the mind is the difference between the two animals, which is so great as to occasion surprise; and this, like other emotions, magnifying its object, makes us conceive the difference to be the greatest that can be: we see, or seem to see, the one animal extremely little, and the other extremely large. The emotion of surprise arising from any unusual resemblance, serves equally to explain, why at first view we are apt to think such resemblance more entire than it is in reality. And it must be observed, that the circumstances of more and less, which are the proper subjects of comparison, raise a perception so indistinct and vague as to facilitate the effect described; we have no mental standard of great and little, nor of the several degrees of any attribute; and the mind, thus unrestrained, is naturally disposed to indulge its surprise to the utmost extent.

In exploring the operations of the mind, some of which are extremely nice and slippery, it is necessary

to proceed with the utmoſt circumſpection: and after all, ſeldom it happens that ſpeculations of that kind afford any ſatisfaction. Luckily, in the preſent caſe, our ſpeculations are ſupported by facts and ſolid argument. Firſt, a ſmall object of one ſpecies oppoſed to a great object of another, produces not, in any degree, that deception which is ſo remarkable when both objects are of the ſame ſpecies. The greateſt diſparity between objects of different kinds, is ſo common as to be obſerved with perfect indifference; but ſuch diſparity between the objects of the ſame kind being uncommon, never fails to produce ſurpriſe: and may we not fairly conclude, that ſurpriſe, in the latter caſe, is what occaſions the deception, when we find no deception in the former? In the next place, if ſurpriſe be the ſole cauſe of the deception, it follows neceſſarily that the deception will vaniſh as ſoon as the objects compared become familiar. This holds ſo unerringly, as to leave no reaſonable doubt that ſurpriſe is the prime mover: our ſurpriſe is great, the firſt time a ſmall lapdog is ſeen with a large maſtiff; but when two ſuch animals are conſtantly together, there is no ſurpriſe, and it makes no difference whether they be viewed ſeparately or in company. We ſet no bounds to the riches of a man who has recently made his fortune; the ſurpriſing diſproportion between his preſent and his paſt ſituation being carried to an extreme: but with regard to a family that for many generations hath enjoyed great wealth, the ſame falſe reckoning is not made. It is equally remarkable, that a trite ſimile has no effect: a lover compared to a moth ſcorching itſelf at the flame of a candle, originally a ſprightly ſimile, has by frequent uſe loſt all force; love cannot now be compared to fire, without ſome degree of diſguſt. It has been juſtly obſerved againſt Homer, that the lion is too often introduced into his ſimiles; all the variety he is able to throw into them not being ſufficient to keep alive the reader's ſurpriſe.

To explain the influence of compariſon upon the mind, we have choſen the ſimpleſt caſe, viz. the firſt ſight of two animals of the ſame kind, differing in ſize only; but to complete the theory, other circumſtances muſt be taken in. And the next ſuppoſition we make, is where both animals, ſeparately familiar to the ſpectator, are brought together for the firſt time. In that caſe, the effect of magnifying and diminiſhing is found remarkably greater than in that firſt mentioned; and the reaſon will appear upon analyſing the operation: the firſt feeling we have is of ſurpriſe at the uncommon difference of two creatures of the ſame ſpecies; we are next ſenſible, that the one appears leſs, the other larger, than they did formerly; and that new circumſtance increaſing our ſurpriſe, makes us imagine a ſtill greater oppoſition between the animals, than if we had formed no notion of them beforehand.

Let us make one other ſuppoſition, that the ſpectator was acquainted beforehand with one of the animals only; the lapdog, for example. This new circumſtance will vary the effect; for, inſtead of widening the natural difference, by enlarging in appearance the one animal, and diminiſhing the other in proportion, the whole apparent alteration will reſt upon the lapdog: the ſurpriſe to find it leſs than it appeared formerly, directs to it our whole attention, and makes us conceive it to be a moſt diminutive creature: the maſtiff in the mean time is quite overlooked. To illuſtrate this effect by a familiar example. Take a piece of paper or of linen tolerably white, and compare it with a pure white of the ſame kind: the judgment we formed of the firſt object is inſtantly varied; and the ſurprize occaſioned by finding it leſs white than was thought, produceth a haſty conviction that it is much leſs white than it is in reality: withdrawing now the pure white, and putting in its place a deep black, the ſurpriſe occaſioned by that new circumſtance carries us to the other extreme, and makes us conceive the object firſt mentioned to be a pure white: and thus experience compels us to acknowledge, that our emotions have an influence even upon our eye-ſight. This experiment leads to a general obſervation, that whatever is found more ſtrange and beautiful than was expected, is judged to be more ſtrange and beautiful than it is in reality. Hence a common artifice, to depreciate beforehand what we wiſh to make a figure in the opinion of others.

The compariſons employed by poets and orators are of the kind laſt mentioned; for it is always a known object that is to be magnified or leſſened. The former is effected by likening it to ſome grand object, or by contraſting it with one of an oppoſite character. To effectuate the latter, the method muſt be reverſed: the object muſt be contraſted with ſomething ſuperior to it, or likened to ſomething inferior. The whole effect is produced upon the principal object; which by that means is elevated above its rank, or depreſſed below it.

In accounting for the effect that any unuſual reſemblance or diſſimilitude hath upon the mind, no cauſe has been mentioned but ſurpriſe; and to prevent confuſion, it was proper to diſcuſs that cauſe firſt. But ſurpriſe is not the only cauſe of the effect deſcribed: another occurs, which operates perhaps not leſs powerfully, viz. a principle in human nature that lies ſtill in obſcurity, not having been unfolded by any writer, though its effects are extenſive: and as it is not diſtinguiſhed by a proper name, the reader muſt be ſatisfied with the following deſcription. Every man who ſtudies himſelf or others, muſt be ſenſible of a tendency or propenſity in the mind to complete every work that is begun, and to carry things to their full perfection. There is little opportunity to diſplay that propenſity upon natural operations, which are ſeldom left imperfect; but in the operations of art it hath great ſcope: it impels us to perſevere in our own work, and to wiſh for the completion of what another is doing: we feel a ſenſible pleaſure when the work is brought to perfection; and our pain is not leſs ſenſible when we are diſappointed. Hence our uneaſineſs when an intereſting ſtory is broke off in the middle, when a piece of muſic ends without a cloſe, or when a building or garden is left unfiniſhed. The ſame propenſity operates in making collections; ſuch as the whole works, good and bad, of any author. A certain perſon attempted to collect prints of all the capital paintings, and ſucceeded except as to a few. La Bruyere remarks, that an anxious ſearch was made for theſe; not for their value, but to complete the ſet.

The final cauſe of the propenſity is an additional proof of its exiſtence. Human works are of no ſignificancy till they be completed; and reaſon is not always a ſufficient counterbalance to indolence: ſome prin-

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ciple over and above is necessary to excite our industry, and to prevent our stopping short in the middle of the course.

We need not lose time to describe the co-operation of the foregoing propensity with surprise, in producing the effect that follows any unusual resemblance or dissimilitude. Surprise first operates, and carries our opinion of the resemblance or dissimilitude beyond truth. The propensity we have been describing carries us still farther: for it forces upon the mind a conviction, that the resemblance or dissimilitude is complete. We need no better illustration, than the resemblance that is fancied in some pebbles to a tree or an insect; which resemblance, however faint in reality, is conceived to be wonderfully perfect. The tendency to complete a resemblance acting jointly with surprise, carries the mind sometimes so far, as even to presume upon future events. In the Greek tragedy entitled *Phineides*, those unhappy women seeing the place where it was intended they should be slain, cried out with anguish, "They now saw their cruel destiny had condemned them to die in that place, being the same where they had been exposed in their infancy."

Arist. Poet. cap. 17.

The propensity to advance every thing to its perfection, not only co-operates with surprise to deceive the mind, but of itself is able to produce that effect. Of this we see many instances where there is no place for surprise; and the first we shall give is of resemblance. *Unumquodque eodem modo dissolvitur quo colligatum est*, is a maxim in the Roman law that has no foundation in truth; for tying and loosing, building and demolishing, are acts opposite to each other, and are performed by opposite means: but when these acts are connected by their relation to the same subject, their connection leads us to imagine a sort of resemblance between them, which by the foregoing propensity is conceived to be as complete as possible. The next instance shall be of contrast. Addison observes, "That the palest features look the most agreeable in white; that a face which is overflushed appears to advantage in the deepest scarlet; and that a dark complexion is not a little alleviated by a black hood." The foregoing propensity serves to account for these appearances; to make this evident, one of the cases shall suffice. A complexion, however dark, never approaches to black: when these colours appear together, their opposition strikes us; and the propensity we have to complete the opposition, makes the darkness of complexion vanish out of sight.

Spectator, No 205.

The operation of this propensity, even where there is no ground for surprise, is not confined to opinion or conviction: so powerful it is, as to make us sometimes proceed to action, in order to complete a resemblance or dissimilitude. If this appear obscure, it will be made clear by the following instance. Upon what principle is the *lex talionis* founded, other than to make the punishment resemble the mischief? Reason dictates, that there ought to be a conformity or resemblance between a crime and its punishment; and the foregoing propensity impels us to make the resemblance as complete as possible. Titus Livius ‖, under the influence of that propensity, accounts for a certain punishment by a resemblance between it and the crime, too subtile for common apprehension. Speaking of Mettus Fuffetius, the Alban general, who, for treachery to the Romans his allies, was sentenced to be torn to pieces by horses, he puts the following speech in the mouth of Tullus Hostilius, who decreed the punishment. "*Mette Fuffeti, inquit, si ipse discere posses fidem ac fœdera servare, vivo tibi ea disciplina a me adhibita esset. Nunc, quoniam tuum insanabile ingenium est, at tu tuo supplicio doce humanum genus ea sancta credere, quæ a te violata sunt. Ut igitur paulo ante animum inter Fidenatem Romanamque rem ancipitem gessisti, ita jam corpus passim distrahendum dabis.*" By the same influence, the sentence is often executed upon the very spot where the crime was committed. In the *Electra* of Sophocles, Egistheus is dragged from the theatre into an inner room of the supposed palace, to suffer death where he murdered Agamemnon. Shakespeare, whose knowledge of nature is not less profound than extensive, has not overlooked this propensity:

‖ Lib. 1. § 28.

"*Othello.* Get me some poison, Iago, this night. I'll not expostulate with her, lest her body and her beauty unprovide my mind again. This night, Iago."

"*Iago.* Do it not with poison; strangle her in her bed, even in the bed she hath contaminated."

"*Othello.* Good, good: the justice of it pleases: very good." *Othello, act* 4. *sc.* 5.

Persons in their last moments are generally seized with an anxiety to be buried with their relations. In the *Amynta* of Tasso, the lover, hearing that his mistress was torn to pieces by a wolf, expresses a desire to die the same death.

Upon the subject in general we have two remarks to add. The first concerns resemblance, which, when too entire, hath no effect, however different in kind the things compared may be. The remark is applicable to works of art only; for natural objects of different kinds have scarce ever an entire resemblance. To give an example in a work of art: Marble is a sort of matter very different from what composes an animal; and marble cut into a human figure, produces great pleasure by the resemblance: but if a marble statue be coloured like a picture, the resemblance is so entire as at a distance to make the statue appear a real person: we discover the mistake when we approach; and no other emotion is raised, but surprise occasioned by the deception: the figure still appears a real person, rather than an imitation; and we must use reflection to correct the mistake. This cannot happen in a picture; for the resemblance can never be so entire as to disguise the imitation.

The other remark belongs to contrast. Emotions make the greatest figure when contrasted in succession; but then the succession ought neither to be rapid, nor immoderately slow: if too slow, the effect of contrast becomes faint by the distance of the emotions; and if rapid, no single emotion has room to expand itself to its full size, but is stifled, as it were, in the birth by a succeeding emotion. The funeral oration of the bishop of Meux upon the duchess of Orleans, is a perfect hodge-podge of cheerful and melancholy representations, following each other in the quickest succession: opposite emotions are best felt in succession; but each emotion separately should be raised to its due pitch, before another be introduced.

Resemblance || Reservation

What is above laid down, will enable us to determine a very important question concerning emotions raised by the fine arts, viz. Whether ought similar emotions to succeed each other, or dissimilar? The emotions raised by the fine arts are for the most part too nearly related to make a figure by resemblance; and for that reason their succession ought to be regulated as much as possible by contrast. This holds confessedly in epic and dramatic compositions; and the best writers, led perhaps by taste more than by reasoning, have generally aimed at that beauty. It holds equally in music: in the same cantata all the variety of emotions that are within the power of music, may not only be indulged, but, to make the greatest figure, ought to be contrasted. In gardening, there is an additional reason for the rule: the emotions raised by that art, are at best so faint, that every artifice should be employed to give them their utmost vigour: a field may be laid out in grand, sweet, gay, neat, wild, melancholy scenes; and when these are viewed in succession, grandeur ought to be contrasted with neatness, regularity with wildness, and gaiety with melancholy, so as that each emotion may succeed its opposite: nay, it is an improvement to intermix in the succession rude uncultivated spots as well as unbounded views, which in themselves are disagreeable, but in succession heighten the feeling of the agreeable object; and we have nature for our guide, which in her most beautiful landscapes often intermixes rugged rocks, dirty marshes, and barren stony heaths. The greatest masters of music have the same view in their compositions: the second part of an Italian song seldom conveys any sentiment: and, by its harshness, seems purposely contrived to give a greater relish for the interesting parts of the composition.

A small garden, comprehended under a single view, affords little opportunity for that embellishment. Dissimilar emotions require different tones of mind; and therefore in conjunction can never be pleasant: gaiety and sweetness may be combined, or wildness and gloominess; but a composition of gaiety and gloominess is distasteful. The rude uncultivated compartment of furze and broom in Richmond garden, hath a good effect in the succession of objects; but a spot of that nature would be insufferable in the midst of a polished parterre or flower-plot. A garden, therefore, if not of great extent, admits not dissimilar emotions; and in ornamenting a small garden, the safest course is to confine it to a single expression. For the same reason, a landscape ought also to be confined to a single expression; and accordingly it is a rule in painting, that if the subject be gay, every figure ought to contribute to that emotion.

It follows from the foregoing train of reasoning, that a garden near a great city ought to have an air of solitude. The solitariness, again, of a waste country ought to be contrasted in forming a garden; no temples, no obscure walks; but *jets d'eau*, cascades, objects active, gay, and splendid. Nay, such a garden should in some measure avoid imitating nature, by taking on an extraordinary appearance of regularity and art, to show the busy hand of man, which in a waste country has a fine effect by contrast.

Wit and ridicule make not an agreeable mixture with grandeur. Dissimilar emotions have a fine effect in a slow succession; but in a rapid succession, which approaches to co-existence, they will not be relished. In the midst of a laboured and elevated description of battle, Virgil introduces a ludicrous image, which is certainly out of its place:

> Obvius ambustum torrem Chorinæus ab ara
> Corripit, et venienti Ebuso plagamque ferenti
> Occupat os flammis: illi ingens barba reluxit,
> Nidoremque ambusta dedit. *Æn.* xii. 298.

> E qual tauro ferito, il suo dolore
> Verso mugghiando e sospirando fuore.
> *Gierusal.* cant. 4. st. 1.

It would however be too austere to banish altogether ludicrous images from an epic poem. This poem doth not always soar above the clouds: it admits great variety; and upon occasion can descend even to the ground without sinking. In its more familiar tones, a ludicrous scene may be introduced without impropriety. This is done by Virgil * in a foot-race: the circumstances of which, not excepting the ludicrous part, are copied from Homer †. After a fit of merriment, we are, it is true, the less disposed to the serious and sublime: but then, a ludicrous scene, by unbending the mind from severe application to more interesting subjects, may prevent fatigue, and preserve our relish entire.

* *Eneid*, lib. v.

† *Iliad*, xxiii. 879.

RESEN, (Moses); a town on the Tigris, built by Nimrod; thought to be the *Larissa* of Xenophon; which see. But as *Larissa* is a name in imitation of a Greek city; and as there were no Greek cities, consequently no *Larissa* in Assyria, before Alexander the Great; it is probable that the Greeks asking of what city those were the ruins they saw, the Assyrians might answer, *Laresen*, "Of *Resen*;" which word Xenophon expressed by *Larissa*, a more familiar sound to a Greek ear, (Wells).

RESENTMENT, means a strong perception of good or ill, generally a deep sense of injury, and may be distinguished into *anger* and *revenge*. "By anger (says Archdeacon Paley), I mean the pain we suffer upon the receipt of an injury or affront, with the usual effects of that pain upon ourselves. By revenge, the inflicting of pain upon the person who has injured or offended us, farther than the just ends of punishment or reparation require. Anger prompts to revenge; but it is possible to suspend the effect when we cannot altogether quell the principle. We are bound also to endeavour to qualify and correct the principle itself. So that our duty requires two different applications of the mind: and for that reason anger and revenge should be considered separately." See REVENGE.

RESERVATION, in law, an action or clause whereby something is reserved, or secured to one's self.

Mental RESERVATION, a proposition which, strictly taken, and according to the natural import of the terms, is false; but, if qualified by something concealed in the mind, becomes true.

Mental reservations are the great refuge of religious hypocrites, who use them to accommodate their consciences with their interests: the Jesuits are zealous advocates for mental reservations; yet are they real lies, as including an intention to deceive.

Reserve. Resin.

RESERVE, in law, the ſame with reſervation. See RESERVATION.

Body of Reserve, or Corps de Reserve, in military affairs, the third or laſt line of an army, drawn up for battle; ſo called becauſe they are reſerved to ſuſtain the reſt as occaſion requires, and not to engage but in caſe of neceſſity.

RESERVOIR, a place where water is collected and received, in order to be conveyed to diſtant places through pipes, or ſupply a fountain or jet d'eau.

RESET, in law, the receiving or harbouring an outlawed perſon. See OUTLAWRY.

Reset of Theft, in Scots law. See LAW, nº clxxxvi. 29.

RESIDENCE, in the canon and common law, the abode of a perſon or incumbent upon his benefice; and his aſſiduity in attending on the ſame.

RESIDENT, a public miniſter, who manages the affairs of a kingdom or ſtate, at a foreign court.

They are a claſs of public miniſters inferior to ambaſſadors or envoys; but, like them, are under the protection of the law of nations.

RESIDUE, the remainder or balance of an account, debt, or obligation.

RESIGNATION, in general, ſignifies the implicit ſubmiſſion of ourſelves, or of ſomething we poſſeſs, to the will of another. In a religious ſenſe it ſignifies a perfect ſubmiſſion, without diſcontent, to the will of God. See MORAL PHILOSOPHY, nº 119.

RESIN, in natural hiſtory, a viſcid juice oozing either ſpontaneouſly, or by inciſion, from ſeveral trees, as the pine, fir, &c.—A premium for ſeveral years has been offered by the London Society for Encouraging Arts, &c. for diſcovering a mode of reducing the inflammable quality of reſin, ſo as to adapt it to the purpoſes of making candles; but no ſuch diſcovery has yet been made.

Elastic Resin. See CAOUTCHOUC.

Gum Resin, a mixture of gum and reſin. See PHARMACY, nº 38.

Red Gum Resin, is procured from the red gum tree, or eucalyptus reſinifera; a tree ſo large and loſty as to exceed in ſize the Engliſh oak. The wood of the tree is brittle, and of little uſe but for firewood, from the large quantity of reſinous gum it contains. The tree is diſtinguiſhed by having pedunculated flowers, and an acute or pointed conical calyptra. To obtain the juice from this tree inciſions are made in the trunk of it, and ſometimes upwards of 60 gallons of red reſinous juice have been obtained from one of them. "When this juice is dried, it becomes a very powerful aſtringent gum-reſin, of a red colour, much reſembling that known in the ſhops by the name of *kino*, and, for all medical purpoſes, fully as efficacious. Mr White adminiſtered it to a great number of patients in the dyſentery, which prevailed much ſoon after the landing of the convicts, and in no one inſtance found it to fail. This gum-reſin diſſolves almoſt entirely in ſpirit of wine, to which it gives a blood-red tincture. Water diſſolves about one ſixth part only, and the watery ſolution is of a bright red. Both theſe ſolutions are powerfully aſtringent." *White's Voyage, Appendix.*

Yellow Gum Resin, is procured from the yellow reſin tree, which is as large as the Engliſh walnut tree. The properties of this reſin are equal to thoſe of the moſt fragrant balſams. It exudes from the bark ſpontaneouſly, but more readily if inciſions are made. The colour of it is yellow, and at firſt it is fluid; but after being inſpiſſated in the ſun, it becomes ſolid. When burnt on hot coals, it ſmells like a mixture of balſam of Tolu and benzoin, approaching ſomewhat to ſtorax. "It is perfectly ſoluble in ſpirit of wine, but not in water, nor even in eſſential oil of turpentine, unleſs it be digeſted in a ſtrong heat. The varniſh which it makes with either is very weak, and of little uſe. With reſpect to its medicinal qualities, Mr White has found it, in many caſes, a good pectoral medicine, and very balſamic. It is not obtainable in ſo great abundance as the red gum produced by the eucalyptus reſinifera. The plant which produces the yellow gum ſeems to be perfectly unknown to botaniſts, but Mr White has communicated no ſpecimens by which its genus or even claſs could be determined." *Ibid.*

RESINOUS ELECTRICITY, is that kind of electricity which is produced by exciting bodies of the reſinous kind, and which is generally negative. See ELECTRICITY *paſſim*.

RESISTANCE, or *Resisting Force*, in philoſophy, denotes, in general, any power which acts in an oppoſite direction to another, ſo as to deſtroy or diminiſh its effect. See MECHANICS, HYDROSTATICS, and PNEUMATICS.

Of all the reſiſtances of bodies to each, there is undoubtedly none of greater importance than the reſiſtance or reaction of fluids. It is here that we muſt look for a theory of naval architecture, for the impulſe of the air is our moving power, and this muſt be modified ſo as to produce every motion we want by the form and diſpoſition of our ſails; and it is the reſiſtance of the water which muſt be overcome, that the ſhip may proceed in her courſe; and this muſt alſo be modified to our purpoſe, that the ſhip may not drive like a log to leeward, but on the contrary may ply to windward, that ſhe may anſwer her helm briſkly, and that ſhe may be eaſy in all her motions on the ſurface of the troubled ocean. The impulſe of wind and water makes them ready and indefatigable ſervants in a thouſand ſhapes for driving our machines; and we ſhould loſe much of their ſervice did we remain ignorant of the laws of their action: they would ſometimes become terrible maſters, if we did not fall upon methods of eluding or ſoftening their attacks. Refusing, Resistance. Importance of the subject.

We cannot refuſe the ancients a conſiderable knowledge of this ſubject. It was equally intereſting to them as to us; and we cannot read the accounts of the naval exertions of Phœnicia, Carthage, and of Rome, exertions which have not been ſurpaſſed by any thing of modern date, without believing that they poſſeſſed much practical and experimental knowledge of this ſubject. It was not, perhaps, poſſeſſed by them in a ſtrict and ſyſtematic form, as it is now taught by our mathematicians; but the maſter-builders, in their dockyards, did undoubtedly exerciſe their genius in comparing the forms of their fineſt ſhips, and in marking thoſe circumſtances of form and dimenſion which were *in fact* accompanied with the deſirable properties of a ſhip, and thus framing to themſelves maxims of naval architecture in the ſame manner as we do now. For we believe The ancients were tolerably well acquainted with

2

Resistance.

believe that our naval architects are not disposed to grant that they have profited much by all the labours of the mathematicians. But the ancients had not made any great progress in the physicomathematical sciences, which consist chiefly in the application of calculus to the phenomena of nature. In this branch they could make none, because they had not the means of investigation. A knowledge of the motions and actions of fluids is accessible only to those who are familiarly acquainted with the fluxionary mathematics; and without this key there is no admittance. Even when possessed of this guide, our progress has been very slow, hesitating, and devious; and we have not yet been able to establish any set of doctrines which are susceptible of an easy and confident application to the arts of life. If we have advanced farther than the ancients, it is because we have come after them, and have profited by their labours, and even by their mistakes.

3 But even now it is not perfectly understood.

4 Sir I. Newton first applied mathematics to it.

Sir Isaac Newton was the first (as far as we can recollect) who attempted to make the motions and actions of fluids the subject of mathematical discussion. He had invented the method of fluxions long before he engaged in his physical researches; and he proceeded in these *suâ mathesi facem præferente*. Yet even with this guide he was often obliged to grope his way, and to try various bye-paths, in the hopes of obtaining a legitimate theory. Having exerted all his powers in establishing a theory of the lunar motions, he was obliged to rest contented with an approximation instead of a perfect solution of the problem which ascertains the motions of three bodies mutually acting on each other. This convinced him that it was in vain to expect an accurate investigation of the motions and actions of fluids, where millions of unseen particles combine their influence. He therefore cast about to find some particular case of the problem which would admit of an accurate determination, and at the same time furnish circumstances of analogy or resemblance sufficiently numerous for giving limiting cases, which should include between them those other cases that did not admit of this accurate investigation. And thus, by knowing the limit to which the case proposed did approximate, and the circumstance which regulated the approximation, many useful propositions might be deduced for directing us in the application of these doctrines to the arts of life.

5 Difficulties he met with in it.

6 He proposed a theory,

He therefore figured to himself a hypothetical collection of matter which possessed the characteristic property of fluidity, viz. the *quâquâversum* propagation of pressure, and the most perfect intermobility (pardon the uncouth term) of parts, and which formed a physical whole or aggregate, whose parts were connected by mechanical forces, determined both in degree and in direction, and such as rendered the determination of certain important circumstances of their motion susceptible of precise investigation. And he concluded, that the laws which he should discover in these motions must have a great analogy with the laws of the motions of real fluids: And from this hypothesis he deduced a series of propositions, which form the basis of almost all the theories of the impulse and resistance of fluids which have been offered to the public since his time.

7 Which does not, however, agree with experiment.

It must be acknowledged, that the results of this theory agree but ill with experiment, and that, *in the way in which it has been zealously projecuted by subsequent mathematicians*, it proceeds on principles or assumptions which are not only gratuitous, but even false. But it affords such a beautiful application of geometry and calculus, that mathematicians have been as it were fascinated by it, and have published systems so elegant and so extensively applicable, that one cannot help lamenting that the foundation is so flimsy. John Bernoulli's theory, in his dissertation on the communication of motion, and Bouguer's in his *Traité du Navire*, and in his *Theorie du Manœuvre et de la Mature des Vaisseaux*, must ever be considered as among the finest specimens of physicomathematical science which the world has seen. And, with all its imperfections, this theory still furnishes (as was expected by its illustrious author) many propositions of immense practical use, they being the limits to which the real phenomena of the impulse and resistance of fluids really approximate. So that when the law by which the phenomena deviate from the theory is once determined by a well chosen series of experiments, this hypothetical theory becomes almost as valuable as a true one. And we may add, that although Mr d'Alembert, by treading warily in the steps of Sir Isaac Newton in another route, has discovered a genuine and unexceptionable theory, the process of investigation is so intricate, requiring every finesse of the most abstruse analysis, and the final equations are so complicated, that even their most expert author has not been able to deduce more than one simple proposition (which too was discovered by Daniel Bernoulli by a more simple process) which can be applied to any use. The hypothetical theory of Newton, therefore, continues to be the groundwork of all our practical knowledge of the subject.

8 But its utility is very considerable.

We shall therefore lay before our readers a very short view of the theory, and the manner of applying it. We shall then show its defects (all of which were pointed out by its great author), and give an historical account of the many attempts which have been made to amend it or to substitute another: in all which we think it our duty to show, that Sir Isaac Newton took the lead, and pointed out every path which others have taken, if we except Daniel Bernoulli and d'Alembert; and we shall give an account of the chief sets of experiments which have been made on this important subject, in the hopes of establishing an empirical theory, which may be employed with confidence in the arts of life.

9 The term resistance, as here applied, explained.

We know by experience that force must be applied to a body in order that it may move through a fluid, such as air or water; and that a body projected with any velocity is gradually retarded in its motion, and generally brought to rest. The analogy of nature makes us imagine that there is a force acting in the opposite direction, or opposing the motion, and that this force resides in, or is exerted by, the fluid. And the phenomena resemble those which accompany the known resistance of active beings, such as animals. Therefore we give to this supposed force the metaphorical name of RESISTANCE. We also know that a fluid in motion will hurry a solid body along with the stream, and that it requires force to maintain it in its place. A similar analogy makes us suppose that the fluid exerts force, in the same manner as when an active being impels the body before him; therefore we call this the IMPULSION *of a Fluid*. And as our knowledge of nature informs us that the mutual actions of bodies are in every

Resistance

every case equal and opposite, and that the observed change of motion is the only indication, characteristic, and measure, of the changing force, the forces are the same (whether we call them impulsions or resistances) when the relative motions are the same, and therefore depend entirely on these relative motions. The force, therefore, which is necessary for keeping a body immoveable in a stream of water, flowing with a certain velocity, is the same with what is required for moving this body with this velocity through stagnant water. To any one who admits the motion of the earth round the sun, it is evident that we can neither observe nor reason from a case of a body moving through still water, nor of a stream of water pressing upon or impelling a quiescent body.

A body in motion appears to be resisted by a stagnant fluid, because it is a law of mechanical nature that force must be employed in order to put any body in motion. Now the body cannot move forward without putting the contiguous fluid in motion, and force must be employed for producing this motion. In like manner, a quiescent body is impelled by a stream of fluid, because the motion of the contiguous fluid is diminished by this solid obstacle; the resistance, therefore, or impulse, no way differs from the ordinary communications of motion among solid bodies.

10 Sir Isaac Newton supposes two systems similar in their parts, and each part having a constant ratio to each.

Sir Isaac Newton, therefore, begins his theory of the resistance and impulse of fluids, by selecting a case where, although he cannot pretend to ascertain the motions themselves which are produced in the particles of a contiguous fluid, he can tell precisely their mutual ratios.

He supposes two systems of bodies such, that each body of the first is similar to a corresponding body of the second, and that each is to each in a constant ratio. He also supposes them to be similarly situated, that is, at the angles of similar figures, and that the homologous lines of these figures are in the same ratio with the diameters of the bodies. He farther supposes, that they attract or repel each other in similar directions, and that the accelerating connecting forces are also proportional; that is, the forces in the one system are to the corresponding forces in the other system in a constant ratio, and that, in each system taken apart, the forces are as the squares of the velocities directly, and as the diameters of the corresponding bodies, or their distances, inversely.

11 Motions of the similar parts being similar.

This being the case, it legitimately follows, that if similar parts of the two systems are put into similar motions, in any given instant, they will *continue* to move similarly, each correspondent body describing similar curves, with proportional velocities: For the bodies being similarly situated, the forces which act on a body in one system, arising from the combination of any number of adjoining particles, will have the same direction with the forces acting on the corresponding body in the other system, arising from the combined action of the similar and similarly directed forces of the adjoining correspondent bodies of the other system; and these compound forces will have the same ratio with the simple forces which constitute them, and will be as the squares of the velocities directly, and as the distances, or any homologous lines inversely; and therefore the chords of curvature, having the direction of the centripetal or centrifugal forces, and similarly inclined to the tangents of the curves described by the corresponding bodies, will have the same ratio with the distances of the particles. The curves described by the corresponding bodies will therefore be similar, the velocities will be proportional, and the bodies will be similarly situated at the end of the first moment, and exposed to the action of similar and similarly situated centripetal or centrifugal forces; and this will again produce similar motions during the next moment, and so on for ever. All this is evident to any person acquainted with the elementary doctrines of curvilineal motions, as delivered in the theory of physical astronomy.

12 Consequence deduced from it.

From this fundamental proposition, it clearly follows, that if two similar bodies, having their homologous lines proportional to those of the two systems, be similarly projected among the bodies of those two systems with any velocities, they will produce similar motions in the two systems, and will themselves continue to move similarly; and therefore will, in every subsequent moment, suffer similar diminutions or retardations. If the initial velocities of projection be the same, but the densities of the two systems, that is, the quantities of matter contained in an equal bulk or extent, be different, it is evident that the quantities of motion produced in the two systems in the same time will be proportional to the densities; and if the densities are the same, and uniform in each system, the quantities of motion produced will be as the squares of the velocities, because the motion communicated to each corresponding body will be proportional to the velocity communicated, that is, to the velocity of the impelling body; and the number of similarly situated particles which will be agitated will also be proportional to this velocity. Therefore, the whole quantities of motion produced in the same moment of time will be proportional to the squares of the velocities. And lastly, if the densities of the two systems are uniform, or the same through the whole extent of the systems, the number of particles impelled by similar bodies will be as the surfaces of these bodies.

Now the diminutions of the motions of the projected bodies are (by Newton's third law of motion) equal to the motions produced in the systems; and these diminutions are the measures of what are called the resistances opposed to the motions of the projected bodies. Therefore, combining all these circumstances, the resistances are proportional to the similar surfaces of the moving bodies, to the densities of the systems through which the motions are performed, and to the squares of the velocities, jointly.

13 A fluid considered as a system of small bodies similarly arranged.

We cannot form to ourselves any distinct notion of a fluid, otherwise than as a system of small bodies, or a collection of particles, similarly or symmetrically arranged, the centres of each being situated in the angles of regular solids. We must form this notion of it, whether we suppose, with the vulgar, that the particles are little globules in mutual contact, or, with the partisans of corpuscular attractions and repulsions, we suppose the particles kept at a distance from each other by means of these attractions and repulsions mutually balancing each other. In this last case, no other arrangement is consistent with a quiescent equilibrium: and in this case, it is evident, from the theory of curvilineal motions, that the agitations of the particles will always be such, that the connecting forces, in actual exertion, will

Resistance. will be proportional to the squares of the velocities directly, and to the chords of curvature having the direction of the forces inversely.

From these premises, therefore, we deduce, in the strictest manner, the demonstration of the leading theorem of the resistance and impulse of fluids; namely,

14 First law of the resistance, &c. of fluids.

PROP. I. The resistances, and (by the third law of motion), the impulsions of fluids on similar bodies, are proportional to the surfaces of the solid bodies, to the densities of the fluids, and to the squares of the velocities, jointly.

We must now observe, that when we suppose the particles of the fluid to be in mutual contact, we may either suppose them elastic or unelastic. The motion communicated to the collection of elastic particles must be double of what the same body, moving in the same manner, would communicate to the particles of an unelastic fluid. The impulse and resistance of elastic fluids must therefore be double of those of unelastic fluids.—

15 Elasticity of water.

But we must caution our readers not to judge of the elasticity of fluids by their sensible compressibility. A diamond is incomparably more elastic than the finest football, though not compressible in any sensible degree.— It remains to be decided, by well chosen experiments, whether water be not as elastic as air. If we suppose, with Boscovich, the particles of perfect fluids to be at a distance from each other, we shall find it difficult to conceive a fluid void of elasticity. We hope that the theory of their impulse and resistance will suggest experiments which will decide this question, by pointing out what ought to be the absolute impulse or resistance in either case. And thus the fundamental proposition of the impulse and resistance of fluids, taken in its proper meaning, is susceptible of a rigid demonstration, relative to the only distinct notion that we can form of the internal constitution of a fluid. We say, *taken in its proper meaning;* namely, that the impulse or resistance of fluids is a pressure, opposed and measured by another pressure, such as a pound weight, the force of a spring, the pressure of the atmosphere, and the like. And we apprehend that it would be very difficult to find any legitimate demonstration of this leading proposition different from this, which we have now borrowed from Sir Isaac Newton, Prop. 23. B. II. *Princip.* We acknowledge that it is prolix and even circuitous: but in all the attempts made by his commentators and their copyists to simplify it, we see great defects of logical argument, or assumption of principles, which are not only gratuitous, but inadmissible. We shall have occasion, as we proceed, to point out some of these defects; and doubt not but the illustrious author of this demonstration had exercised his uncommon patience and sagacity in similar attempts, and was dissatisfied with them all.

Before we proceed further, it will be proper to make a general remark, which will save a great deal of discussion. Since it is a matter of universal experience, that every action of a body on others is accompanied by an equal and contrary re-action; and since all that we can demonstrate concerning the resistance of bodies during their motions through fluids proceeds on this supposition, (the resistance of the body being *assumed* as equal and opposite to the sum of motions communicated to the particles of the fluid, estimated in the direction of the bodies motion), we are intitled to proceed in the contrary order, and to consider the impulsions which each of the particles of fluid exerts on the body at rest, as equal and opposite to the motion which the body would communicate to that particle if the fluid were at rest, and the body were moving equally swift in the opposite direction. And therefore the whole impulsion of the fluid must be conceived as the measure of the whole motion which the body would thus communicate to the fluid. It must therefore be also considered as the measure of the resistance which the body, moving with the same velocity, would sustain from the fluid. When, therefore, we shall demonstrate any thing concerning the impulsion of a fluid, estimated in the direction of its motion, we must consider it as demonstrated concerning the resistance of a quiescent fluid to the motion of that body, having the same velocity in the opposite direction. The determination of these impulsions being much easier than the determination of the motions communicated by the body to the particles of the fluid, this method will be followed in most of the subsequent discussions.

Resistance.

The general proposition already delivered is by no means sufficient for explaining the various important phenomena observed in the mutual actions of solids and fluids. In particular, it gives us no assistance in ascertaining the modifications of this resistance or impulse, which depend on the shape of the body and the inclination of its impelled or resisted surface to the direction of the motion. Sir Isaac Newton found another hypothesis necessary; namely, that the fluid should be so extremely rare that the distance of the particles may be incomparably greater than their diameters. This additional condition is necessary for considering their actions as so many separate collisions or impulsions on the solid body. Each particle must be supposed to have abundant room to rebound, or otherwise escape, after having made its stroke, without sensibly affecting the situations and motions of the particles which have not yet made their stroke: and the motion must be so swift as not to give time for the sensible exertion of their mutual forces of attractions and repulsions.

Keeping these conditions in mind, we may proceed to determine the impulsions made by a fluid on surfaces of every kind: And the most convenient method to pursue in this determination, is to compare them all either with the impulse which the *same surface* would receive from the fluid impinging on it perpendicularly, or with the impulse which the *same stream of fluid* would make when coming perpendicularly on a surface of such extent as to occupy the whole stream.

16 Terms explained.

It will greatly abbreviate language, if we make use of a few terms in an appropriated sense.

By a *stream*, we shall mean a quantity of fluid moving in one direction, that is, each particle moving in parallel lines; and the *breadth* of the stream is a line perpendicular to all these parallels.

A *filament* means a portion of this stream of very small breadth, and it consists of an indefinite number of particles following one another in the same direction, and successively impinging on, or gliding along, the surface of the solid body.

The *base* of any surface exposed to a stream of fluid, is that portion of a plane perpendicular to the stream, which is covered or protected from the action of the stream by the surface exposed to its impulse. Thus the base of a sphere exposed to a stream of fluid is its great circle.

Resistance. circle, whose plane is perpendicular to the stream. If BC (fig. 1.) be a plane surface exposed to the action of a stream of fluid, moving in the direction DC, then BR, or SE, perpendicular to DC, is its base.

Plate CCCCXXXVI

Direct impulse shall express the energy or action of the particle or filament, or stream of fluid, when meeting the surface perpendicularly, or when the surface is perpendicular to the direction of the stream.

Absolute impulse means the actual pressure on the impelled surface, arising from the action of the fluid, whether striking the surface perpendicularly or obliquely; or it is the force impressed on the surface, or tendency to motion which it acquires, and which must be opposed by an equal force in the opposite direction, in order that the surface may be maintained in its place. It is of importance to keep in mind, that this pressure is always perpendicular to the surface. It is a proposition founded on universal and uncontradicted experience, that the mutual actions of bodies on each other are always exerted in a direction perpendicular to the touching surfaces. Thus, it is observed, that when a billiard ball A is struck by another B, moving in any direction whatever, the ball A always moves off in the direction perpendicular to the plane which touches the two balls in the point of mutual contact, or point of impulse. This inductive proposition is supported by every argument which can be drawn from what we know concerning the forces which connect the particles of matter together, and are the immediate causes of the communication of motion. It would employ much time and room to state them here; and we apprehend that it is unnecessary: for no reason can be assigned why the pressure should be in *any particular* oblique direction. If any one should say that the impulse will be in the direction of the stream, we have only to desire him to take notice of the effect of the rudder of a ship. This shows that the impulse *is not in the direction of the stream*, and is therefore in some direction transverse to the stream.—He will also find, that when a plane surface is impelled obliquely by a fluid, there is no direction in which it can be supported but the direction perpendicular to itself. It is quite safe, in the mean time, to take it as an experimental truth. We may, perhaps, in some other part of this work, give what will be received as a rigorous demonstration.

Relative or effective impulse means the pressure on the surface estimated in some particular direction. Thus BC (fig. 1.) may represent the sail of a ship, impelled by the wind blowing in the direction DC. GO may be the direction of the ship's keel, or the line of her course. The wind strikes the sail in the direction GH parallel to DC; the sail is urged or pressed in the direction GI, perpendicular to BC. But we are interested to know what tendency this will give the ship to move in the direction GO. This is the effective or relative impulse. Or BC may be the transverse section of the sail of a common wind-mill. This, by the construction of the machine, can move only in the direction GP, perpendicular to the direction of the wind; and it is only in this direction that the impulse produces the desired effect. Or BC may be half of the prow of a punt or lighter, riding at anchor by means of the cable DC, attached to the prow C. In this case, GQ, parallel to DC, is that part of the absolute impulse which is employed in straining the cable.

The *angle of incidence* is the angle FGC contained between the direction of the stream FG and the plane BC. Resistance.

The *angle of obliquity* is the angle OGC contained between the plane and the direction GO, in which we wish to estimate the impulse.

17 Second law of resistance.

Prop. II. The direct impulse of a fluid on a plane surface, is to its absolute oblique impulse on the same surface, as the square of the radius to the square of the sine of the angle of incidence.

Let a stream of fluid, moving in the direction DC, (fig. 1.), act on the plane BC. With the radius CB describe the quadrant ABE; draw CA perpendicular to CE, and draw MNBS parallel to CE. Let the particle F, moving in the direction FG, meet the plane in G, and in FG produced take GH to represent the magnitude of the direct impulse, or the impulse which the particle would exert on the plane AC, by meeting it in V. Draw GI and HK perpendicular to BC, and HI perpendicular to GI. Also draw BR perpendicular to DC.

The force GH is equivalent to the two forces GI and GK; and GK being in the direction of the plane has no share in the impulse. The absolute impulse, therefore, is represented by GI; the angle GHI is equal to FGC, the angle of incidence; and therefore GH is to GI as radius to the sine of the angle of incidence: Therefore the direct impulse of each particle or filament is to its absolute oblique impulse as radius to the sine of the angle of incidence. But further, the number of particles or filaments which strike the surface AC, is to the number of those which strike the surface BC as AC to NC: for all the filaments between LA and MB go past the oblique surface BC without striking it. But BC : NC = rad. : sin. NBC, = rad. : sin. FGC, = rad. : sin. incidence. Now the whole impulse is as the impulse of each filament, and as the number of filaments exerting equal impulses jointly; therefore the whole direct impulse on AC is to the whole absolute impulse on BC, as the square of radius to the square of the sine of the angle of incidence.

Let S express the extent of the surface, i the angle of incidence, o the angle of obliquity, v the velocity of the fluid, and d its density. Let F represent the direct impulse, f the absolute oblique impulse, and ϕ the relative or effective impulse: And let the tabular sines and cosines be considered as decimal fractions of the radius unity.

This proposition gives us $F : f = R^2 : \text{Sin.}^2 i, = 1 : \text{Sin.}^2 i$, and therefore $f = F \times \text{Sin.}^2 i$. Also, because impulses are in the proportion of the extent of surface similarly impelled, we have, in general, $f = F\,S \times \text{Sin.}^2, i$.

The first who published this theorem was Pardies, in his *Oeuvres de Mathematique*, in 1673. We know that Newton had investigated the chief propositions of the Principia before 1670.

18 Third law.

Prop. III. The direct impulse on any surface is to the effective oblique impulse on the same surface, as the cube of radius to the solid, which has for its base the square of the sine of incidence, and the sine of obliquity for its height.

For, when GH represents the direct impulse of a particle, GI is the absolute oblique impulse, and GO is the effective impulse in the direction GO: Now GI is to GO as radius to the sine of GIO, and GIO is the complement of IGO, and is therefore equal to CGO, the angle of obliquity.

Therefore $f : \varphi = R : \text{Sin. } O$.

But $F : f = R^2 : \text{Sin.}^2 i$

Therefore $F : \varphi = R^3 : \text{Sin.}^3 i \times \text{Sin. } O$. and $\varphi = F \times \text{Sin.}^3 i \times \text{Sin. } O$.

Cor.—The direct impulse on any surface is to the effective oblique impulse in the direction of the stream, as the cube of radius to the cube of the sine of incidence. For draw IQ and GP perpendicular to GH, and IP perpendicular to GP; then the absolute impulse GI is equivalent to the impulse GQ in the direction of the stream, and GP, which may be called the transverse impulse. The angle GIQ is evidently equal to the angle GHI, or FGC, the angle of incidence.

Therefore $f : \varphi = GI : GQ, = R : \text{Sin. } i$.

But $F : f = R^2 : \text{Sin.}^2 i$.

Therefore $F : \varphi = R^3 : \text{Sin.}^3 i$.

And $\varphi = F \times \text{Sin.}^3 i$.

Before we proceed further, we shall consider the impulse on a surface which is also in motion. This is evidently a frequent and an important case. It is perhaps the most frequent and important: It is the case of a ship under sail, and of a wind or water-mill at work.

Therefore, let a stream of fluid, moving with the direction and velocity DE, meet a plane BC, (fig. 1. n° 2.), which is moving parallel to itself in the direction and with the velocity DF: It is required to determine the impulse?

Nothing is more easy: The mutual actions of bodies depend on their relative motions only. The motion DE of the fluid relative to BC, which is also in motion, is compounded of the real motion of the fluid and the opposite to the real motion of the body. Therefore produce FD till $Df = DF$, and complete the parallelogram $DfeE$, and draw the diagonal De. The impulse on the plane is the same as if the plane were at rest, and every particle of the fluid impelled it in the direction and with the velocity De; and may therefore be determined by the foregoing proposition. This proposition applies to every possible case; and we shall not bestow more time on it, but reserve the important modification of the general proposition for the cases which shall occur in the practical applications of the whole doctrine of the impulse and resistance of fluids.

PROP. IV. The direct impulse of a stream of fluid, whose breadth is given, is to its oblique effective impulse in the direction of the stream, as the square of radius to the square of the sine of the angle of incidence.

For the number of filaments which occupy the oblique plane BC, would occupy the portion NC of a perpendicular plane, and therefore we have only to compare the perpendicular impulse on any point V with the effective impulse made by the same filament FV on the oblique plane at G. Now GH represents the impulse which this filament would make at V; and GQ is the effective impulse of the same filament at G, estimated in the direction GH of the stream; and GH is to GQ as GH^2 to GI^2, that is, as rad.^2 to $\text{sin.}^2 i$.

Cor. 1. The effective impulse in the direction of the stream on any plane surface BC, is to the direct impulse on its base BR or SE, as the square of the sine of the angle of incidence to the square of the radius. Resistance

2. If an isosceles wedge ACB (fig. 2.) be exposed to a stream of fluid moving in the direction of its height CD, the impulse on the sides is to the direct impulse on the base as the square of half the base AD to the square of the side AC, or as the square of the sine of half the angle of the wedge to the square of the radius. For it is evident, that in this case the two transverse impulses, such as GP in fig. 1, balance each other, and the only impulse which can be observed is the sum of the two impulses, such as GQ of fig. 1, which are to be compared with the impulses on the two halves AD, DB of the base. Now $AC : AB = \text{rad.} : \text{sin. } ACD$, and ACD is equal to the angle of incidence.

Therefore, if the angle ACB is a right angle, and ACD is half a right angle, the square of AC is twice the square of AD, and the impulse on the sides of a rectangular wedge is half the impulse on its base.

Also, if a cube ACBE (fig. 3.) be exposed to a stream moving in a direction perpendicular to one of its sides, and then to a stream moving in a direction perpendicular to one of its diagonal planes, the impulse in the first case will be to the impulse in the second as $\sqrt{2}$ to 1. Call the perpendicular impulse on a side F, and the perpendicular impulse on its diagonal plane f, and the effective oblique impulse on its sides φ;—we have

$F : f = AC : AB = 1 : \sqrt{2}$, and

$f : \varphi = AC^2 : AD^2 = 2 : 1$. Therefore

$F : \varphi = 2 : \sqrt{2}, = \sqrt{2} : 1$, or

very nearly as 10 to 7.

The same reasoning will apply to a pyramid whose base is a regular polygon, and whose axis is perpendicular to the base. If such a pyramid is exposed to a stream of fluid moving in the direction of the axis, the direct impulse on the base is to the effective impulse on the pyramid, as the square of the radius to the square of the sine of the angle which the axis makes with the sides of the pyramid.

And, in like manner, the direct impulsion on the base of a right cone is to the effective impulsion on the conical surface, as the square of the radius to the square of the sine of half the angle at the vertex of the cone. This is demonstrated, by supposing the cone to be a pyramid of an infinite number of sides.

We may in this manner compare the impulse on any polygonal surface with the impulse on its base, by comparing apart the impulses on each plane with those in their corresponding bases, and taking their sum.

And we may compare the impulse on a curved surface with that on its base, by resolving the curved surface into elementary planes, each of which is impelled by an elementary filament of the stream.

The following beautiful proposition, given by Le Seur and Jaquier, in their Commentary on the second Book of Newton's Principia, with a few examples of its application, will suffice for any further account of this theory.

22 The impulse on a curved surface compared with that on its base.

PROP. V.—Let ADB (fig. 4.) be the section of a surface of simple curvature, such as is the surface of a cylinder. Let this be exposed to the action of a fluid moving in the direction AC. Let BC be the section

Resistance.

section of the plane (which we have called its base), perpendicular to the direction of the stream. In AC produced, take any length CG; and on CG describe the semicircle CHG, and complete the rectangle BCGO. Through any point D of the curve draw ED parallel to AC, and meeting BC and OG in Q and P. Let DF touch the curve in D, and draw the chord GH parallel to DF, and HKM perpendicular to CG, meeting ED in M. Suppose this to be done for every point of the curve ADB, and let LMN be the curve which passes through all the points of intersection of the parallels EDP and the corresponding perpendiculars HKM.

The effective impulse on the curve surface ADB in the direction of the stream, is to its direct impulse on the base BC as the area BCNL is to the rectangle BCGO.

Draw *e d q m p* parallel to EP and extremely near it. The arch D*d* of the curve may be conceived as the section of an elementary plane, having the position of the tangent DF. The angle EDF is the angle of incidence of the filament ED *de*. This is equal to CGH, because ED, DF, are parallel to CG, GH; and (because CHG is a semicircle) CH is perpendicular to GH. Also CG : CH = CH : CK, and CG : CK = $CG^2 : CH^2$, = rad.^{2} : sin.^{2}, CGH, = rad.^{2} : sin.^{2} incid. Therefore if CG, or its equal DP, represent the direct impulse on the point Q of the base, CK, or its equal QM, will represent the effective impulse on the point D of the curve. And thus, Q *q p* P will represent the direct impulse of the filament on the element Q *q* of the base, and Q *q m* M will represent the effective impulse of the same filament on the element D *d* of the curve. And, as this is true of the whole curve ADB, the effective impulse on the whole curve will be represented by the area BCNML; and the direct impulse on the base will be represented by the rectangle BCGO; and therefore the impulse on the curve-surface is to the impulse on the base as the area BLMNC is to the rectangle BOGC.

It is plain, from the construction, that if the tangent to the curve at A is perpendicular to AC, the point N will coincide with G. Also, if the tangent to the curve at B is parallel to AC, the point L will coincide with B.

Whenever, therefore, the curve ADB is such that an equation can be had to exhibit the general relation between the abscissa AR and the ordinate DR, we shall deduce an equation which exhibits the relation between the abscis CK and the ordinate KM of the curve LMN; and this will give us the ratio of BLNC to BOGC.

Thus, if the surface is that of a cylinder, so that the curve BDA *b* (fig. 5.), which receives the impulse of the fluid, is a semicircle, make CG equal to AC, and construct the figure as before. The curve BMG is a parabola, whose axis is CG, whose vertex is G, and whose parameter is equal to CG. For it is plain, that CG = DC, and GH = CQ, = MK. And CG × GK = $GH^2 = KM^2$. That is, the curve is such, that the square of the ordinate KM is equal to the rectangle of the abscissa GK and a constant line GC; and it is therefore a parabola whose vertex is G. Now, it is well known, that the parabolic area BMGC is two thirds of the parallelogram BCGO. Therefore the impulse on the quadrant ADB is two thirds of the impulse on the base BC. The same may be said of the quadrant A *d b* and its base *c b*. Therefore, *The impulse on a cylinder or half cylinder is two thirds of the direct impulse on its transverse plane through the axis*; or it is two thirds of the direct impulse on one side of a parallelopiped of the same breadth and height.

The impulse on a cylinder.

Prop. VI.—If the body be a solid generated by the revolution of the figure BDAC (fig. 4.) round the axis AC; and if it be exposed to the action of a stream of fluid moving in the direction of the axis AC; then the effective impulse in the direction of the stream is to the direct impulse on its base, as the solid generated by the revolution of the figure BLMNC round the axis CN to the cylinder generated by the revolution of the rectangle BOGC.

This scarcely needs a demonstration. The figure ADBLMNA is a section of these solids by a plane passing through the axis; and what has been demonstrated of this section is true of every other, because they are all equal and similar. It is therefore true of the whole solids, and (their base) the circle generated by the revolution of BC round the axis AC.

2 On a sphere and

Hence we easily deduce, that *The impulse on a sphere is one half of the direct impulse on its great circle, or on the base of a cylinder of equal diameter.*

For in this case the curve BMN (fig. 5.) which generates the solid expressing the impulse on the sphere is a parabola, and the solid is a parabolic conoid. Now this conoid is to the cylinder generated by the revolution of the rectangle BOGC round the axis CG, as the sum of all the circles generated by the revolution of ordinates to the parabola such as KM, to the sum of as many circles generated by the ordinates to the rectangle such as KT; or as the sum of all the squares described on the ordinates KM to the sum of as many squares described on the ordinates KT. Draw BG cutting MK in S. The square on MK is to the square on BC or TK as the abscissa GK to the abscissa GC (by the nature of the parabola), or as SK to BC; because SK and BC are respectively equal to GK and GC. Therefore the sum of all the squares on ordinates, such as MK, is to the sum of as many squares on ordinates, such as TK, as the sum of all the lines SK to the sum of as many lines TK; that is, as the triangle BGC to the rectangle BOGC; that is, as one to two: and therefore the impulse on the sphere is one half of the direct impulse on its great circle.

2. On the frustum of a cone

From the same construction we may very easily deduce a very curious and seemingly useful truth, that of all conical bodies having the circle whose diameter is AB (fig. 2.) for its base, and FD for its height, the one which sustains the smallest impulse or meets with the smallest resistance is the frustum AGHB of a cone ACB so constructed, that EF being taken equal to ED, EA is equal to EC. This frustum, though more capacious than the cone AFB of the same height, will be less resisted.

Also, if the solid generated by the revolution of BDAC (fig. 4.) have its anterior part covered with a frustum of a cone generated by the lines D *a*, *a* A, forming

Resistance. forming the angle at *a* of 135 degrees; this solid, though more capacious than the included solid, will be less resisted.

And, from the same principles, Sir Isaac Newton determined the form of the curve ADB which would generate the solid which, of all others of the same length and base, should have the least resistance.

These are curious and important deductions, but are not introduced here, for reasons which will soon appear.

The reader cannot fail to observe, that all that we have hitherto delivered on this subject, relates to the comparison of different impulses or resistances. We have always compared the oblique impulsions with the direct, and by their intervention we compare the oblique impulsions with each other. But it remains to give absolute measures of some individual impulsion; to which, as to an unit, we may refer every other. And as it is by their pressure that they become useful or hurtful, and they must be opposed by other pressures, it becomes extremely convenient to compare them all with that pressure with which we are most familiarly acquainted, the pressure of gravity.

26 Different impulsions compared with the pressure of gravity.

The manner in which the comparison is made, is this. When a body advances in a fluid with a known velocity, it puts a known quantity of the fluid into motion (as is supposed) with this velocity; and this is done in a known time. We have only to examine what weight will put this quantity of fluid into the same motion, by acting on it during the same time. This weight is conceived as equal to the resistance. Thus, let us suppose that a stream of water, moving at the rate of eight feet *per* second, is perpendicularly obstructed by a square foot of solid surface held fast in its place. Conceiving water to act in the manner of the hypothetical fluid now described, and to be without elasticity, the whole effect is the gradual annihilation of the motion of eight cubic feet of water moving eight feet in a second. And this is done in a second of time. It is equivalent to the gradually putting eight cubic feet of water into motion with this velocity; and doing this by acting uniformly during a second. What weight is able to produce this effect? The weight of eight feet of water, acting during a second on it, will, as is well known, give it the velocity of thirty-two feet *per* second; that is, four times greater. Therefore, the weight of the fourth part of eight cubic feet, that is, the weight of two cubic feet, acting during a second, will do the same thing, or the weight of a column of water whose base is a square foot, and whose height is two feet. This will not only produce this effect in the same time with the impulsion of the solid body, but it will also do it by the same degrees, as any one will clearly perceive, by attending to the gradual acceleration of the mass of water urged by $\frac{1}{4}$ of its weight, and comparing this with the gradual production or extinction of motion in the fluid by the progress of the resisted surface.

Now it is well known that 8 cubic feet of water, by falling one foot, which it will do in one-fourth of a second, will acquire the velocity of eight feet per second by its weight; therefore the force which produces the same effect in a whole second is one-fourth of this. This force is therefore equal to the weight of a column of water, whose base is a square foot, and whose height is two feet; that is, twice the height necessary for acquiring the velocity of the motion by gravity. The conclusion is the same whatever be the surface that is resisted, whatever be the fluid that resists, and whatever be the velocity of the motion. In this inductive and familiar manner we learn, that *the direct impulse or resistance of an unelastic fluid on any plane surface, is equal to the weight of a column of the fluid having the surface for its base, and twice the fall necessary for acquiring the velocity of the motion for its height:* and if the fluid is considered as elastic, the impulse or resistance is twice as great. See Newt. *Princip.* B. II. prop. 35. and 38.

27 This theory tried by different experiments.

It now remains to compare this theory with experiment. Many have been made, both by Sir Isaac Newton and by subsequent writers. It is much to be lamented, that in a matter of such importance, both to the philosopher and to the artist, there is such a disagreement in the results with each other. We shall mention the experiments which seem to have been made with the greatest judgment and care. Those of Sir Isaac Newton were chiefly made by the oscillations of pendulums in water, and by the descent of balls both in water and in air. Many have been made by Mariotte (*Traité de Mouvement des Eaux*). Gravesande has published, in his *System of Natural Philosophy*, experiments made on the resistance or impulsions on solids in the midst of a pipe or canal. They are extremely well contrived, but are on so small a scale that they are of very little use. Daniel Bernoulli, and his pupil Professor Krafft, have published, in the *Comment. Acad. Petropol.* experiments on the impulse of a stream or vein of water from an orifice or tube: These are of great value. The Abbé Bossut has published others of the same kind in his *Hydrodynamique*. Mr Robins has published, in his *New Principles of Gunnery*, many valuable experiments on the impulse and resistance of air. The Chev. de Borda, in the *Mem. Acad. Paris*, 1763 and 1767, has given experiments on the resistance of air and also of water, which are very interesting. The most complete collection of experiments on the resistance of water are those made at the public expence by a committee of the academy of sciences, consisting of the marquis de Condorcet, Mr d'Alembert, Abbé Bossut, and others. The Chev. de Buat, in his *Hydraulique*, has published some most curious and valuable experiments, where many important circumstances are taken notice of, which had never been attended to before, and which give a view of the subject totally different from what is usually taken of it. Don George d'Ulloa, in his *Examine Maritimo*, has also given some important experiments, similar to those adduced by Bougeur in his *Manœuvre des Vaisseaux*, but leading to very different conclusions. All these should be consulted by such as would acquire a practical knowledge of this subject. We must content ourselves with giving their most general and steady results. Such as,

1. It is very consonant to experiment that the resistances are proportional to the squares of the velocities. When the velocities of water do not exceed a few feet per second, no sensible deviation is observed. In very small velocities the resistances are sensibly greater than in this proportion, and this excess is plainly owing to the viscidity or imperfect fluidity of water. Sir Isaac

Resistance. Newton has shown that the resistance arising from this cause is constant, or the same in every velocity; and when he has taken off a certain part of the total resistance, he found the remainder was very exactly proportionable to the square of the velocity. His experiments to this purpose were made with balls a very little heavier than water, so as to descend very slowly; and they were made with his usual care and accuracy, and may be depended on.

28 Causes of its disagreement with them.

In the experiments made with bodies floating on the surface of water, there is an addition to the resistance arising from the inertia of the water. The water heaps up a little on the anterior surface of the floating body, and is depressed behind it. Hence arises a hydrostatical pressure, acting in concert with the true resistance. A similar thing is observed in the resistance of air, which is condensed before the body and rarefied behind it, and thus an additional resistance is produced by the unbalanced elasticity of the air; and also because the air, which is *actually* displaced, is denser than common air. These circumstances cause the resistances to increase faster than the squares of the velocities: but, even independent of this, there is an additional resistance arising from the tendency to rarefaction behind a very swift body; because the pressure of the surrounding fluid can only make the fluid fill the space left with a determined velocity.

We have had occasion to speak of this circumstance more particularly under GUNNERY and PNEUMATICS, when considering very rapid motions. Mr Robins had remarked that the velocity at which the observed resistance of the air began to increase so prodigiously, was that of about 1100 or 1200 feet per second, and that this was the velocity with which air would rush into a void. He concluded, that when the velocity was greater than this, the ball was exposed to the additional resistance arising from the unbalanced statical pressure of the air, and that this constant quantity behoved to be added to the resistance arising from the air's inertia in all greater velocities. This is very reasonable: But he imagined that in smaller velocities there was no such unbalanced pressure. But this cannot be the case: for although in smaller velocities the air will still fill up the space behind the body, it will not fill it up with air of the same density. This would be to suppose the motion of the air into the deserted place to be instantaneous. There must therefore be a rarefaction behind the body, and a pressure backward; arising from unbalanced elasticity, independent of the condensation on the anterior part. The condensation and rarefaction are caused by the same thing, *viz.* the limited elasticity of the air. Were this infinitely great, the smallest condensation before the body would be instantly diffused over the whole air, and so would the rarefaction, so that no pressure of unbalanced elasticity would be observed; but the elasticity is such as to propagate the condensation with the velocity of sound only, *i. e.* the velocity of 1142 feet per second. Therefore this additional resistance does not commence precisely at this velocity, but is sensible in all smaller velocities, as is very justly observed by Euler. But we are not yet able to ascertain the law of its increase, although it is a problem which seems susceptible of a tolerably accurate solution.

Precisely similar to this is the resistance to the motion of floating bodies, arising from the accumulation or gorging up of the water on their anterior surface, and its depression behind them. Were the gravity of the water infinite, while its inertia remains the same, the wave raised up at the prow of a ship would be instantly diffused over the whole ocean, and it would therefore be infinitely small, as also the depression behind the poop. But this wave requires time for its diffusion; and while it is not diffused, it acts by hydrostatical pressure. We are equally unable to ascertain the law of variation of this part of the resistance, the mechanism of waves being but very imperfectly understood. The height of the wave in the experiments of the French academy could not be measured with sufficient precision (being only observed *au toisé*) for ascertaining its relation to the velocity. The Chev. Buat attempted it in his experiments, but without success. This must evidently make a part of the resistance in all velocities: and it still remains an undecided question, "What relation it bears to the velocities?" When the solid body is wholly buried in the fluid, this accumulation does not take place, or at least not in the same way: It may, however, be observed. Every person may recollect, that in a very swift running stream a large stone at the bottom will produce a small swell above it; unless it lies very deep, a nice eye may still observe it. The water, on arriving at the obstacle, glides past it in every direction, and is deflected on all hands; and therefore what passes over it is also deflected upwards, and causes the water over it to rise above its level. The nearer that the body is to the surface, the greater will be the perpendicular rise of the water, but it will be less diffused; and it is uncertain whether the *whole* elevation will be greater or less. By the whole elevation we mean the area of a perpendicular section of the elevation by a plane perpendicular to the direction of the stream. We are rather disposed to think that this area will be greatest when the body is near the surface. D'Ulloa has attempted to consider this subject scientifically; and is of a very different opinion, which he confirms by the single experiment to be mentioned by and by. Mean time, it is evident, that if the water which glides past the body cannot fall in behind it with sufficient velocity for filling up the space behind, there must be a void there; and thus a hydrostatical pressure must be superadded to the resistance arising from the inertia of the water. All must have observed, that if the end of a stick held in the hand be drawn slowly through the water, the water will fill the place left by the stick, and there will be no curled wave: but if the motion be very rapid, a hollow trough or gutter is left behind, and is not filled up till at some distance from the stick, and the wave which forms its sides is very much broken and curled. The writer of this article has often looked into the water from the poop of a second rate man of war when she was sailing 11 miles per hour, which is a velocity of 16 feet per second nearly; and he not only observed that the back of the rudder was naked for about two feet below the load water-line, but also that the trough or wake made by the ship was filled up with water which was broken and foaming to a considerable depth, and to a considerable distance from the vessel: There must therefore have been

Resistance. a void. He never saw the wake perfectly transparent (and therefore completely filled with water) when the velocity exceeded 9 or 10 feet per second. While this broken water is observed, there can be no doubt that there is a void and an additional resistance. But even when the space left by the body, or the space behind a still body exposed to a stream, is completely filled, it may not be filled sufficiently fast, and there may be (and certainly is, as we shall see afterwards) a quantity of water behind the body, which is moving more slowly away than the rest, and therefore hangs in some shape by the body, and is dragged by it, increasing the resistance. The quantity of this must depend partly on the velocity of the body or stream, and partly on the rapidity with which the surrounding water comes in behind. This last must depend on the pressure of the surrounding water. It would appear, that when this adjoining pressure is very great, as must happen when the depth is great, the augmentation of resistance now spoken of would be less. Accordingly this appears in Newton's experiments, where the balls were less retarded as they were deeper under water.

These experiments are so simple in their nature, and were made with such care, and by a person so able to detect and appreciate every circumstance, that they deserve great credit, and the conclusions *legitimately* drawn from them deserve to be considered as physical laws. We think that the present deduction is unexceptionable: for in the motion of balls, which hardly descended, their preponderancy being hardly sensible, the effect of depth must have borne a very great proportion to the whole resistance, and must have greatly influenced their motions; yet they were observed to fall as if the resistance had no way depended on the depth.

The same thing appears in Borda's experiments, where a sphere which was deeply immersed in the water was less resisted than one that moved with the same velocity near the surface; and this was very constant and regular in a course of experiments. D'Ulloa, however, affirms the contrary: He says that the resistance of a board, which was a foot broad, immersed one foot in a stream moving two feet per second, was $15\frac{1}{2}$ lbs. and the resistance to the same board, when immersed 2 feet in a stream moving $1\frac{1}{2}$ feet per second (in which case the surface was 2 feet), was $26\frac{1}{2}$ pounds (A).

29 Singularity of D'Ulloa's experiments.

We are very sorry that we cannot give a proper account of this theory of resistance by Don George Juan D'Ulloa, an author of great mathematical reputation, and the inspector of the marine academies in Spain. We have not been able to procure either the original or the French translation, and judge of it only by an extract by Mr Prony in his *Architecture Hydraulique*, § 868. &c. The theory is enveloped (according to Mr Prony's custom) in the most complicated expressions, so that the physical principles are kept almost out of sight. When accommodated to the simplest possible case, it is nearly as follows.

30 His theory of resistance.

Let o be an elementary orifice or portion of the surface of the side of a vessel filled with a heavy fluid, and let h be its depth under the horizontal surface of the fluid. Let δ be the density of the fluid, and g the accelerative power of gravity, $= 32$ feet velocity acquired in a second. Resistance.

It is known, says he, that the water would flow out at this hole with the velocity $u = \sqrt{2gh}$, and $u^2 = 2gh$ and $h = \frac{u^2}{2g}$. It is also known that the pressure p on the orifice o is $gohh, = gohh\frac{u^2}{2g}, = \frac{1}{2}\delta o u^2$.

Now let this little surface o be supposed to move with the velocity v. The fluid would meet it with the velocity $u + v$, or $u - v$, according as it moved in the opposite or in the same direction with the efflux. In the equation $p = \frac{1}{2}\delta o u^2$, substitute $u \pm v$ for u, and we have the pressure on $o = p = \frac{\delta o}{2}(u \pm v)^2, = \frac{\delta o}{2}(\sqrt{2gh} \pm v^2)$.

This pressure is a weight, that is, a mass of matter m actuated by gravity g, or $p = gm$, and $m = \delta o\left(\sqrt{h} \pm \frac{v}{\sqrt{2g}}\right)^2$.

This elementary surface being immersed in a stagnant fluid, and moved with the velocity v, will sustain on one side a pressure $\delta o\left(\sqrt{h} + \frac{v}{\sqrt{2}}\right)^2$ and on the other side a pressure $\delta o\left(\sqrt{h} - \frac{v}{\sqrt{2g}}\right)^2$; and the sensible resistance will be the difference of these two pressures, which is $\delta o 4\sqrt{h}\frac{v}{\sqrt{2g}}$, or $\delta o 4\sqrt{h}\frac{v}{8}$, that is, $\frac{\delta o\sqrt{h}v}{2}$, because $\sqrt{2g} = 8$; a quantity which is in the subduplicate ratio of the depth under the surface of the fluid, and the simple ratio of the velocity of the resisted surface jointly.

There is nothing in experimental philosophy more certain than that the resistances are very nearly in the duplicate ratio of the velocities; and we cannot conceive by what experiments the ingenious author has supported this conclusion.

But there is, besides, what appears to us to be an essential defect in this investigation. The equation exhibits no resistance in the case of a fluid without weight. Now a theory of the resistance of fluids should exhibit the retardation arising from inertia alone, and should distinguish it from that arising from any other cause: and moreover, while it *assigns* an ultimate sensible resistance proportional (*ceteris paribus*) to the simple velocity, it *assumes* as a first principle that the pressure p is as $\overline{u \pm v}^2$. It also gives a false measure of the statical pressures: for these (in the case of bodies immersed in our waters at least) are made up of the pressure of the incumbent water, which is measured by h, and the pressure of the atmosphere, a constant quantity. 31 Defect in his investigation.

Whatever reason can be given for setting out with the principle that the pressure on the little surface o, moving with the velocity u, is equal to $\frac{1}{2}\delta o(u \pm v)^2$, makes it indispensably necessary to take for the velocity

u_2

(A) There is something very unaccountable in these experiments. The resistances are much greater than any other author has observed.

Resistance. u, nor that with which water would issue from a hole whose depth under the surface is h, but the velocity with which it will issue from a hole whose depth is $h + 33$ feet. Because the pressure of the atmosphere is equal to that of a column of water 33 feet high: for this is the acknowledged velocity with which it would rush in to the void left by the body. If therefore this velocity (which does not exist) has any share in the effort, we must have for the fluxion of pressure not $\frac{4\sqrt{h}\,v}{\sqrt{2g}}$ but $\frac{4\sqrt{h+33}\,v}{\sqrt{2g}}$. This would not only give pressure or resistances many times exceeding those that have been observed in our experiments, but would also totally change the proportions which this theory determines. It was at any rate improper to embarrass an investigation, already very intricate, with the pressure of gravity, and with two motions of efflux, which do not exist, and are necessary for making the pressures in the ratio of $\overline{u+v}^2$ and $\overline{u-v}^2$.

Mr Prony has been at no pains to inform his readers of his reasons for adopting this theory of resistance, so contrary to all received opinions, and to the most distinct experiments. Those of the French academy, made under greater pressures, gave a much smaller resistance; and the very experiments adduced in support of this theory are extremely deficient, wanting fully $\frac{1}{3}$d of what the theory requires. The resistances by experiment were $15\frac{1}{2}$ and $26\frac{1}{2}$, and the theory required $20\frac{1}{2}$ and 39. The equation, however, deduced from the theory is greatly deficient in the expression of the pressures caused by the accumulation and depression, stating the heights of them as $= \frac{v^2}{2g}$. They can never be so high, because the heaped up water flows off at the sides, and it also comes in behind by the sides; so that the pressure is much less than half the weight of a column whose height is $\frac{v^2}{2g}$; both because the accumulation and depression are less at the sides than in the middle, and because, when the body is wholly immersed, the accumulation is greatly diminished. Indeed in this case the final equation does not include their effects, though as real in this case as when part of the body is above water.

Upon the whole, we are somewhat surprised that an author of D'Ulloa's eminence should have adopted a theory so unnecessarily and so improperly embarrassed with foreign circumstances; and that Mr Prony should have inserted it with the explanation by which he was to abide, in a work destined for practical use.

This point, or the effect of deep immersion, is still much contested; and it is a received opinion, by many not accustomed to mathematical researches, that the resistance is greater in greater depths. This is assumed as an important principle by Mr Gordon, author of *A Theory of Naval Architecture*; but on very vague and slight grounds; and the author seems unacquainted with the manner of reasoning on such subjects. It shall be considered afterwards.

With these corrections, it may be asserted that theory and experiment agree very well in this respect, and that the resistance may be asserted to be in the duplicate ratio of the velocity.

We have been more minute on this subject, because it is the leading proposition in the theory of the action of fluids. Newton's demonstration of it takes no notice of the manner in which the various particles of the fluid are put into motion, or the motion which each in particular acquires. He only shows, that if there be nothing concerned in the communication but pure inertia, the sum total of the motions of the particles, estimated in the direction of the bodies motion, or that of the stream, will be in the duplicate ratio of the velocity. It was therefore of importance to show that this part of the theory was just. To do this, we had to consider the effect of every circumstance which could be combined with the inertia of the fluid. All these had been foreseen by that great man, and are most briefly, though perspicuously, mentioned in the last scholium to prop. 36. B. II.

32 Impulse and resistances nearly in proportion of the surfaces.

2. It appears from a comparison of all the experiments, that the impulses and resistances are very nearly in the proportion of the surfaces. They appear, however, to increase somewhat faster than the surfaces. The Chevalier Borda found that the resistance, with the same velocity, to a surface of

$$\left.\begin{matrix}9\text{ inches}\\16\\36\\81\end{matrix}\right\}\text{ was }\left\{\begin{matrix}9\\17{,}535\\42{,}750\\104{,}737\end{matrix}\right\}\text{ instead of }\left\{\begin{matrix}9\\16\\36\\81\end{matrix}\right.$$

The deviation in these experiments from the theory increases with the surface, and is probably much greater in the extensive surfaces of the sails of ships and windmills, and the hulls of ships.

3. The resistances do by no means vary in the duplicate ratio of the sines of the angles of incidence.

As this is the most interesting circumstance, having a chief influence on all the particular modifications of the resistance of fluids, and as on this depends the whole theory of the construction and working of ships, and the action of water on our most important machines, and seems most immediately connected with the mechanism of fluids, it merits a very particular consideration. We cannot do a greater service than by rendering more generally known the excellent experiments of the French academy.

33 Experiments of the French academy, Plate CCCCXXXVI.

Fifteen boxes or vessels were constructed, which were two feet wide, and two feet deep, and four feet long. One of them was a parallelopiped of these dimensions; the others had prows of a wedge-form, the angle ACB (fig. 7.) varying by 12° degrees from 12° to 180°; so that the angle of incidence increased by 6° from one to another. These boxes were dragged across a very large bason of smooth water (in which they were immersed two feet) by means of a line passing over a wheel connected with a cylinder, from which the actuating weight was suspended. The motion became perfectly uniform after a very little way; and the time of passing over 96 French feet with this uniform motion was very carefully noted. The resistance was measured by the weight employed, after deducting a certain quantity (properly estimated) for friction, and for the accumulation of the water against the anterior surface. The results of the many experiments are given in the following table; where column 1st contains the angle of the prow, column 2d contains the resistance as given by the preceding theory, column 3d contains the resistance exhibited in the experiments, and column 4th contains the deviation of the experiment from the theory.

Resistance.

I.	II.	III.	IV.
180	10000	10000	0
168	9890	9893	+3
156	9568	9578	+10
144	9045	9084	+39
132	8346	8446	+100
120	7500	7710	+210
108	6545	6925	+380
96	5523	6148	+625
84	4478	5433	+955
72	3455	4800	+1345
60	2500	4404	+1904
48	1654	4240	+2586
36	955	4142	+3187
24	432	4063	+3631
12	109	3999	+3890

The resistance to 1 square foot, French measure, moving with the velocity of 2,56 feet per second, was very nearly 7,625 pounds French.

Reducing these to English measures, we have the surface = 1,1363 feet, the velocity of the motion equal to 2,7263 feet per second, and the resistance equal to 8,234 pounds avoirdupois. The weight of a column of fresh water of this base, and having for its height the fall necessary for communicating this velocity, is 8,264 pounds avoirdupois. The resistances to other velocities were accurately proportional to the squares of the velocities.

There is great diversity in the value which different authors have deduced for the absolute resistance of water from their experiments. In the value now given nothing is taken into account but the inertia of the water. The accumulation against the forepart of the box was carefully noted, and the statical pressure backwards, arising from this cause, was subtracted from the whole resistance to the drag. There had not been a sufficient variety of experiments for discovering the share which tenacity and friction produced; so that the number of pounds set down here may be considered as somewhat superior to the mere effects of the inertia of the water. We think, upon the whole, that it is the most accurate determination yet given of the resistance to a body in motion: but we shall afterwards see reasons for believing, that the impulse of a running stream having the same velocity is somewhat greater; and this is the form in which most of the experiments have been made.

Also observe, that the resistance here given is that to a vessel two feet broad and deep and four feet long. The resistance to a plane of two feet broad and deep would probably have exceeded this in the proportion of 15,22 to 14,54, for reasons we shall see afterwards.

34 And others. From the experiments of Chevalier Buat, it appears that a body of one foot square, French measure, and two feet long, having its centre 15 inches under water, moving three French feet per second, sustained a pressure of 14,54 French pounds, or 15,63 English. This reduced in the proportion of 3^2 to $2,56^2$ gives 11,43 pounds, considerably exceeding the 8,24.

Mr Bouguer, in his *Manœuvre des Vaisseaux*, says, that he found the resistance of sea-water to a velocity of one foot to be 23 ounces *poids des Marc*.

The Chevalier Borda found the resistance of sea-water to the face of a cubic foot, moving against the water one foot per second, to be 21 ounces nearly. But this experiment is complicated: the wave was not deducted; and it was not a plane, but a cube.

Resistance.

Don George d'Ulloa found the impulse of a stream of sea-water, running two feet per second on a foot square, to be 15½ pounds English measure. This greatly exceeds all the values given by others.

35 Consequences from them.

From these experiments we learn, in the first place, that the direct resistance to a motion of a plane surface through water, is very nearly equal to the weight of a column of water having that surface for its base, and for its height the fall producing the velocity of the motion. This is but one half of the resistance determined by the preceding theory. It agrees, however, very well with the best experiments made by other philosophers on bodies totally immersed or surrounded by the fluid; and sufficiently shows, that there must be some fallacy in the principles or reasoning by which this result of the theory is supposed to be deduced. We shall have occasion to return to this again.

But we see that the effects of the obliquity of incidence deviate enormously from the theory, and that this deviation increases rapidly as the acuteness of the prow increases. In the prow of 60° the deviation is nearly equal to the whole resistance pointed out by the theory, and in the prow of 12° it is nearly 40 times greater than the theoretical resistance.

The resistance of the prow of 90° should be one half the resistance of the base. We have not such a prow; but the medium between the resistance of the prow of 96 and 84 is 5790, instead of 500.

These experiments are very conform to those of other authors on plane surfaces. Mr Robins found the resistance of the air to a pyramid of 45°, with its apex foremost, was to that of its base as 1000 to 1411, instead of one to two. Chevalier Borda found the resistance of a cube, moving in water in the direction of the side, was to the oblique resistance, when it was moved in the direction of the diagonal, in the proportion of $5\frac{1}{3}$ to 7; whereas it should have been that of $\sqrt{2}$ to 1, or of 10 to 7 nearly. He also found, that a wedge whose angle was 90°, moving in air, gave for the proportion of the resistances of the edge and base 7281 : 10000, instead of 5000 : 10000. Also when the angle of the wedge was 60°, the resistances of the edge and base were 52 and 100, instead of 25 and 100.

In short, in all the cases of oblique plane surfaces, the resistances were greater than those which are assigned by the theory. The theoretical law agrees tolerably with observation in large angles of incidence, that is, in incidences not differing very far from the perpendicular; but in more acute prows the resistances are more nearly proportional to the sines of incidence than to their squares.

The academicians deduced from these experiments an expression of the general value of the resistance, which corresponds tolerably well with observation. Thus let x be the complement of the half angle of the prow, and let P be the direct pressure or resistance, with an incidence of 90°, and p the effective oblique pressure: then $p = \mathrm{P} \times \text{cosine}^2 x + 3,153 \left(\frac{x}{60}\right)^{3,25}$. This gives for a prow of 12° an error in defect about $\frac{1}{100}$, and in larger angles it is much nearer the truth; and this is exact enough for any practice.

This

Resistance.

This is an abundantly simple formula; but if we introduce it in our calculations of the resistances of curvilineal prows, it renders them so complicated as to be almost useless; and what is worse, when the calculation is completed for a curvilineal prow, the resistance which results is found to differ widely from experiment. This shows that the motion of the fluid is so modified by the action of the most prominent part of the prow, that its impulse on what succeeds is greatly affected, so that we are not allowed to consider the prow as composed of a number of parts, each of which is affected as if it were detached from all the rest.

As the very nature of naval architecture seems to require curvilineal forms, in order to give the necessary strength, it seemed of importance to examine more particularly the deviations of the resistances of such prows from the resistances assigned by the theory. The academicians therefore made vessels with prows of a cylindrical shape; one of these was a half cylinder, and the other was one-third of a cylinder, both having the same breadth, viz. two feet, the same depth, also two feet, and the same length, four feet. The resistance of the half cylinder was to the resistance of the perpendicular prow in the proportion of 13 to 25, instead of being as 13 to 19,5. The Chevalier Borda found nearly the same ratio of the resistances of the half cylinder, and its diametrical plane when moved in air. He also compared the resistances of two prisms or wedges, of the same breadth and height. The first had its sides plane, inclined to the base in angles of 60°: the second had its sides portions of cylinders, of which the planes were the chords, that is, their sections were arches of circles of 60°. Their resistances were as 133 to 100, instead of being as 133 to 220, as required by the theory; and as the resistance of the first was greater in proportion to that of the base than the theory allows, the resistance of the last was less.

Mr Robins found the resistance of a sphere moving in air to be to the resistance of its great circle as 1 to 2,27; whereas theory requires them to be as 1 to 2. He found, at the same time, that the absolute resistance was greater than the weight of a cylinder of air of the same diameter, and having the height necessary for acquiring the velocity. It was greater in the proportion of 49 to 10 nearly.

Borda found the resistance of the sphere moving in water to be to that of its great circle as 1000 to 2508, and it was one-ninth greater than the weight of the column of water whose height was that necessary for producing the velocity. He also found the resistance of air to the sphere was to its resistance to its great circle as 1 to 2,45.

35 The theory gives some resistances too small and others too great.

It appears, on the whole, that the theory gives the resistance of oblique plane surfaces too small, and that of curved surfaces too great; and that it is quite unfit for ascertaining the modifications of resistance arising from the figure of the body. The most prominent part of the prow changes the action of the fluid on the succeeding parts, rendering it totally different from what it would be were that part detached from the rest, and exposed to the stream with the same obliquity. It is of no consequence, therefore, to deduce any formula from the valuable experiments of the French academy. The experiments themselves are of great importance, because they give us the impulses on plane surfaces with every obliquity. They therefore put it in our power to select the most proper obliquity in a thousand important cases. By appealing to them, we can tell what is the proper angle of the sail for producing the greatest impulse in the direction of the ship's course; or the best inclination of the sail of a wind-mill, or the best inclination of the float of a water-wheel, &c. &c. These deductions will be made in their proper places in the course of this work. We see also, that the deviation from the simple theory is not very considerable till the obliquity is great; and that, in the inclinations which other circumstances would induce us to give to the floats of water-wheels, the sails of wind-mills, and the like, the results of the theory are sufficiently agreeable to experiment, for rendering this theory of very great use in the construction of machines. Its great defect is in the impulsions on curved surfaces, which puts a stop to our improvement of the science of naval architecture, and the working of ships.

But it is not enough to detect the faults of this theory; we should try to amend it, or to substitute another. It is a pity that so much ingenuity should have been thrown away in the application of a theory so defective. Mathematicians were seduced, as has been already observed, by the opportunity which it gave for exercising their calculus, which was a new thing at the time of publishing this theory. Newton saw clearly the defects of it, and makes no use of any part of it in his subsequent discussions, and plainly has used it merely as an introduction, in order to give some general notions in a subject quite new, and to give a demonstration of one leading truth, viz. the proportionality of the impulsions to the squares of the velocities. While we profess the highest respect for the talents and labours of the great mathematicians who have followed Newton in this most difficult research, we cannot help being sorry that some of the greatest of them continued to attach themselves to a theory which he neglected, merely because it afforded an opportunity of displaying their profound knowledge of the new calculus, of which they were willing to ascribe the discovery to Leibnitz. It has been in a great measure owing to this that we have been so late in discovering our ignorance of the subject. Newton had himself pointed out all the defects of this theory; and he set himself to work to discover another which should be more conformable to the nature of things, retaining only such deductions from the other as his great sagacity assured him would stand the test of experiment. Even in this he seems to have been mistaken by his followers. He retained the proportionality of the resistance to the square of the velocity. This they have endeavoured to demonstrate in a manner conformable to Newton's determination of the oblique impulses of fluids; and under the cover of the agreement of this proposition with experiment, they introduced into mechanics a mode of expression, and even of conception, which is inconsistent with all accurate notions on these subjects. Newton's proposition was, that the motions communicated to the fluid, and therefore the motions lost by the body, in equal times, were as the squares of the velocities; and he conceived these as proper measures of the resistances. It is a matter of experience, that the forces or pressures by which a body must be supported in opposition to the impulses of fluids, are in this very proportion. In determining the

37 Its defects pointed out by Newton.

proportion of the direct and oblique resistances of plane surfaces, he considers the resistances to arise from mutual collisions of the surface and fluid, repeated at intervals of time too small to be perceived. But in making this comparison, he has no occasion whatever to consider this *repetition*; and when he assigns the proportion between the resistance of a cone and of its base, he, in fact, assigns the proportion between two *simultaneous* and instantaneous impulses. But the mathematicians who followed him have considered this repetition as equivalent to an augmentation of the initial or first impulse; and in this way have attempted to demonstrate that the resistances are as the squares of the velocities. When the velocity is double, each impulse is double, and the number in a given time is double; therefore, say they, the resistance, and the force which will withstand it, is quadruple; and observation confirms their deduction: yet nothing is more gratuitous and illogical. It is very true that the resistance, conceived as Newton conceives it, the loss of motion sustained by a body moving in the fluid, is quadruple; but the instantaneous impulse, and the force which can withstand it, is, by all the laws of mechanics, only double. What is the force which can withstand a double impulse? Nothing but a double impulse. Nothing but impulse can be opposed to impulse; and it is a gross misconception to think of stating any kind of comparison between impulse and pressure. It is this which has given rise to much jargon and false reasoning about the force of percussion. This is stated as infinitely greater than any pressure, and as equivalent to a pressure infinitely repeated. It forced the abettors of these doctrines at last to deny the existence of all pressures whatever, and to assert that all motion, and tendency to motion, was the result of impulse. The celebrated Euler, perhaps the first mathematician, and the lowest philosopher, of this century, says, "since motion and impulse are seen to exist, and since we see that by means of motion pressure may be produced, as when a body in motion strikes another, or as when a body moving in a curved channel presses upon it, merely in consequence of its curvilineal motion, and the exertion of a centrifugal force; and since Nature is most wisely economical in all her operations; it is absurd to suppose that pressure, or tendency to motion, has any other origin; and it is the business of a philosopher to discover by what motions any observed pressure is produced." Whenever any pressure is observed, such as the pressure of gravity, of magnetism, of electricity, of condensed air, nay, of a spring, and of elasticity and cohesion themselves, however disparate, nay, opposite, the philosopher must immediately cast about, and contrive a set of motions (creating *pro re nata!* the movers) which will produce a pressure like the one observed. Having pleased his fancy with this, he cries out "this *will produce* the pressure;" *et frustra fit per plura quod fieri potest per paucioria*, "therefore in this way the pressure *is* produced." Thus the vortices of Descartes are brought back in triumph, and have produced vortices without number, which fill the universe with motion and pressure.

Such bold attempts to overturn long-received doctrines in mechanics, could not be received without much criticism and opposition; and many able dissertations appeared from time to time in defence of the common doctrines. In consequence of the many objections to the comparison of pure pressure with pure percussion or impulse, John Bernoulli and others were at last obliged to assert that there were no perfectly hard bodies in nature, nor could be, but that all bodies were elastic; and that in the communication of motion by percussion, the velocities of both bodies were *gradually* changed by their mutual elasticity acting during the finite but imperceptible time of the collision. This was, in fact, giving up the whole argument, and banishing percussion, while their aim was to get rid of pressure. For what is elasticity but a pressure? and how shall *it* be produced? To act in this instance, must it arise from a still smaller impulse? But this will require another elasticity, and so on without end. Resistance.

These are all legitimate consequences of this attempt to state a comparison between percussion and pressure. Numberless experiments have been made to confirm the statement; and there is hardly an itinerant-lecturing showman who does not exhibit among his apparatus Gravesande's machine (Vol. I. plate xxxv. fig. 4). But nothing affords so specious an argument as the experimented proportionality of the impulse of fluids to the square of the velocity. Here is every appearance of the accumulation of an infinity of minute impulses, in the known ratio of the velocity, each to each, producing pressures which are in the ratio of the squares of the velocities.

The pressures are observed; but the impulses or percussions, whose accumulation produces these pressures, are only supposed. The rare fluid, introduced by Newton for the purpose already mentioned, either does not exist in nature, or does not act in the manner we have said, the particles making their impulse, and then escaping through among the rest without affecting their motion. We cannot indeed say what may be the proportion between the diameter and the distance of the particles. The first may be incomparably smaller than the second, even in mercury, the densest fluid which we are familiarly acquainted with; but although they do not touch each other, they act nearly as if they did, in consequence of their mutual attractions and repulsions. We have seen air a thousand times rarer in some experiments than in others, and therefore the distance of the particles at least ten times greater than their diameters; and yet, in this rare state, it propagates all pressures or impulses made on any part of it to a great distance, almost in an instant. It cannot be, therefore, that fluids act on bodies by impulse. It is very possible to conceive a fluid advancing with a flat surface against the flat surface of a solid. The very first and superficial particles may make an impulse; and if they were annihilated, the next might do the same: and if the velocity were double, these impulses would be double, and would be withstood by a double force, and not a quadruple, as is observed: and this very circumstance, that a quadruple force is necessary, should have made us conclude that it was not to impulse that this force was opposed. The first particles having made their stroke, and not being annihilated, must escape laterally. In their escaping, they effectually prevent every farther impulse, because they come in the way of those filaments which would have struck the body. The whole process seems to be somewhat as follows:

39 But a very small part of a fluid can make any impulse on a surface.

When the flat surface of the fluid has come into contact with the plane surface AD (fig. 6.), perpendicular to

Plate cccxxxvi.

Resistance.

to the direction DC of their motion, they must deflect to both sides equally, and in equal portions, because no reason can be assigned why more should go to either side. By this means the filament EF, which would have struck the surface in G, is deflected *before it arrives* at the surface, and describes a curved path EFIHK, continuing its rectilineal motion to I, where it is intercepted by a filament immediately adjoining to EF, on the side of the middle filament DC. The different particles of DC may be supposed to impinge in succession at C, and to be deflected at right angles; and gliding along CB, to escape at B. Each filament in succession, outwards from DC, is deflected in its turn; and being hindered from even touching the surface CB, it glides off in a direction parallel to it; and thus EF is deflected in I, moves parallel to CB from I to H, and is again deflected at right angles, and describes HK parallel to DC. The same thing may be supposed to happen on the other side of DC.

And thus it would appear, that except two filaments immediately adjoining to the line DC, which bisects the surface at right angles, no part of the fluid makes any impulse on the surface AB. All the other filaments are merely pressed against it by the lateral filaments without them, which they turn aside, and prevent from striking the surface.

Plate cccxxxvi. 40 No impulse on the edge of a prism.

In like manner, when the fluid strikes the edge of a prism or wedge ACB (fig. 7.), it cannot be said that any real impulse is made. Nothing hinders us from supposing C a mathematical angle or indivisible point, not susceptible of any impulse, and serving merely to divide the stream. Each filament EF is effectually prevented from impinging at G in the line of its direction, and with the obliquity of incidence EGC, by the filaments between EF and DC, which glide along the surface CA; and it may be supposed to be deflected when it comes to the line CF which bisects the angle DCA, and again deflected and rendered parallel to DC at I. The same thing happens on the other side of DC; and we cannot in this case assert that there is any impulse.

41 The ordinary theory of no use in naval architecture.

We now see plainly how the ordinary theory must be totally unfit for furnishing principles of naval architecture, even although a formula could be deduced from such a series of experiments as those of the French Academy. Although we should know precisely the impulse, or, to speak now more cautiously, the action, of the fluid on a surface GL (fig. 8.) of any obliquity, when it is alone, detached from all others, we cannot in the smallest degree tell what will be the action of *part* of a stream of fluid advancing towards it, with the same obliquity, when it is preceded by an adjoining surface CG, having a different inclination; for the fluid will not glide along GL in the same manner as if it made part of a more extensive surface having the same inclination. The previous deflexions are extremely different in these two cases; and the previous deflections are the only changes which we can observe in the motions of the fluid, and the only causes of that pressure which we observe the body to sustain, and which we call the impulse on it. This theory must, therefore, be quite unfit for ascertaining the action on a curved surface, which may be considered as made up of an indefinite number of successive planes.

We now see with equal evidence how it happens that the action of fluids on solid bodies may and must be opposed by pressures, and may be compared with and measured by the pressure of gravity. We are not comparing forces of different kinds, percussions with pressures, but pressures with each other. Let us see whether this view of the subject will afford us any method of comparison or absolute measurement.

Pressure of fluids.

When a filament of fluid, that is, a row of corpuscles, are turned out of their course EF (fig. 6.), and forced to take another course IH, force is required to produce this change of direction. The filament is prevented from proceeding by other filaments which lie between it and the body, and which deflect it in the same manner as if it were contained in a bended tube, and it will press on the concave filament next to it as it would press on the concave side of the tube. Suppose such a bended tube ABE (fig. 9.), and that a ball A is projected along it with any velocity, and moves in it without friction: it is demonstrated, in elementary mechanics, that the ball will move with undiminished velocity, and will press on every point, such as B, of the concave side of the tube, in a direction BF perpendicular to the plane CBD, which touches the tube in the point B. This pressure on the adjoining filament, on the concave side of its path, must be withstood by that filament which deflects it; and it must be propagated across that filament to the next, and thus augment the pressure upon that next filament already pressed by the deflection of the intermediate filament; and thus there is a pressure towards the middle filament, and towards the body, arising from the deflection of all the outer filaments; and their accumulated sum must be conceived as immediately exerted on the middle filaments and on the body, because a perfect fluid transmits every pressure undiminished.

The pressure BF is equivalent to the two BH, BG, one of which is perpendicular, and the other parallel, to the direction of the original motion. By the first (taken in any point of the curvilineal motion of any filament), the two halves of the stream are pressed together; and in the case of fig. 6. and 7. exactly balance each other. But the pressures, such as BG, must be ultimately withstood by the surface ACB; and it is by these accumulated pressures that the solid body is urged down the stream; and it is these accumulated pressures which we observe and measure in our experiments. We shall anticipate a little, and say that it is most easily demonstrated, that when a ball A (fig. 9.) moves with undiminished velocity in a tube so incurvated that its axis at E is at right angles to its axis at A, the accumulated action of the pressures, such as BG, taken for every point of the path, is precisely equal to the force which would produce or extinguish the original motion.

This being the case, it follows most obviously, that if the two motions of the filaments are such as we have described and represented by fig. 6. the whole pressure in the direction of the stream, that is, the whole pressure which can be observed on the surface, is equal to the weight of a column of fluid having the surface for its base, and twice the fall productive of the velocity for its height, precisely as Newton deduced it from other considerations; and it seems to make no odds whether the fluid be elastic or unelastic, if the deflections and velocities are the same. Now it is a fact, that no difference in this respect

Where they are not elastic.

Resistance.

spect can be observed in the actions of air and water; and this had always appeared a great defect in Newton's theory: but it was only a defect of the theory attributed to him. But it is also true, that the observed action is but one-half of what is just now deduced from this improved view of the subject. Whence arises this difference? The reason is this: We have given a very erroneous account of the motions of the filaments. A filament EF does not move as represented in fig. 6. with two rectangular inflexions at I and at H, and a path IH between them parallel to CB. The process of nature is more like what is represented in fig. 10. *It is observed*, that at the anterior part of the body AB, there remains a quantity of fluid ADB, almost, if not altogether, stagnant, of a singular shape, having two curved concave sides A*a*D, B*b*D, along which the middle filaments glide. This fluid is very slowly changed.— The late Sir Charles Knowles, an officer of the British navy, equally eminent for his scientific professional knowledge and for his military talents, made many beautiful experiments for ascertaining the paths of the filaments of water. At a distance up the stream, he allowed small jets of a coloured fluid, which did not mix with water, to make part of the stream; and the experiments were made in troughs with sides and bottom of plate-glass. A small taper was placed at a considerable height above, by which the shadows of the coloured filaments were most distinctly projected on a white plane held below the trough, so that they were accurately drawn with a pencil. A few important particulars may be here mentioned.

4 Stagnant fluid by Sir Charles Knowles.

The still water ADC lasted for a long while before it was renewed; and it seemed to be gradually wasted by abrasion, by the adhesion of the surrounding water, which gradually licked away the outer parts from D to A and B; and it seemed to renew itself in the direction CD, opposite to the motion of the stream. There was, however, a considerable intricacy and eddy in this motion. Some (seemingly superficial) water was continually, but slowly, flowing outward from the line DC, while other water was seen within and below it, coming inwards and going backwards.

The coloured lateral filaments were most constant in their form, while the body was the same, although the velocity was in some cases quadrupled. Any change which this produced seemed confined to the superficial filaments.

As the filaments were deflected, they were also constipated, that is, the curved parts of the filaments were nearer each other than the parallel straight filaments up the stream; and this constipation was more considerable as the prow was more obtuse and the deflexion greater.

The inner filaments were ultimately more deflected than those without them; that is, if a line be drawn touching the curve EFIH in the point H of contrary flexure, where the concavity begins to be on the side next the body, the angle HKC, contained between the axis and this tangent line, is so much the greater as the filament is nearer the axis.

When the body exposed to the stream was a box of upright sides, flat bottom, and angular prow, like a wedge, having its edge also upright, the filaments were not all deflected laterally, as theory would make us expect; but the filaments near the bottom were also deflected downwards as well as laterally, and glided along at some distance under the bottom, forming lines of double curvature.

The breadth of the stream that was deflected was much greater than that of the body; and the sensible deflection begun at a considerable distance up the stream, especially in the outer filaments.

Lastly, the form of the curves was greatly influenced by the proportion between the width of the trough and that of the body. The curvature was always less when the trough was very wide in proportion to the body.

Great varieties were also observed in the motion or velocity of the filaments. In general, the filaments increased in velocity outwards from the body to a certain small distance, which was nearly the same in all cases, and then diminished all the way outward. This was observed by inequalities in the colour of the filaments, by which one could be observed to outstrip another. The retardation of those next the body seemed to proceed from friction; and it was imagined that without this the velocity there would always have been greatest.

45 With inferences from them.

These observations give us considerable information respecting the mechanism of these motions, and the action of fluids upon solids. The pressure in the duplicate ratio of the velocities comes here again into view. We found, that although the velocities were very different, the curves were precisely the same. Now the observed pressures arise from the transverse forces by which each particle of a filament is retained in its curvilineal path; and we know that the force by which a body is retained in any curve is directly as the square of the velocity, and inversely as the radius of curvature. The curvature, therefore, remaining the same, the transverse forces, and consequently the pressure on the body, must be as the square of the velocity: and, on the other hand, we can see pretty clearly (indeed it is rigorously demonstrated by D'Alembert), that whatever be the velocities, the curves *will* be the same. For it is known in hydraulics, that it requires a fourfold or ninefold pressure to produce a double or triple velocity. And as all pressures are propagated through a perfect fluid without diminution, this fourfold pressure, while it produces a double velocity, produces also fourfold transverse pressures, which will retain the particles, moving twice as fast, in the same curvilineal paths. And thus we see that the impulses, as they are called, and resistances of fluids, have a certain relation to the weight of a column of fluid, whose height is the height necessary for producing the velocity. How it happens that a plane surface, immersed in an extended fluid, sustains just half the pressure which it would have sustained had the motions been such as are sketched in figure 6th, is a matter of more curious and difficult investigation. But we see evidently that the pressure must be less than what is there assigned; for the stagnant water a-head of the body greatly diminishes the ultimate deflections of the filaments: And it may be demonstrated, that when the part BE of the canal, fig. 9. is inclined to the part AB in an angle less than 90°, the pressures BG along the whole canal are as the versed sine of the ultimate angle of deflection, or the versed sine of the angle which the part BE makes with the part AB. Therefore, since the deflexions resemble more the sketch given in fig. 10. the accumulated sum of all these forces BG of fig. 9. must be less than the similar sum corresponding to fig. 6. that is, less than

Resistance. the weight of the column of fluid, having twice the productive height for its height. How it is just one-half, shall be our next inquiry.

And here we must return to the labours of Sir Isaac Newton. After many beautiful observations on the nature and mechanism of continued fluids, he says, that the resistance which they occasion is but one-half of that occasioned by the rare fluid which had been the subject of his former proposition; "which truth," (says he, with his usual caution and modesty), "I shall endeavour to show."

46 Investigations of Newton

He then enters into another, as novel and as difficult an investigation, viz. the laws of hydraulics, and endeavours to ascertain the motion of fluids through orifices when urged by pressures of any kind. He endeavours to ascertain the velocity with which a fluid escapes through a horizontal orifice in the bottom of a vessel, by the action of its weight, and the pressure which this vein of fluid will exert on a little circle which occupies part of the orifice. To obtain this, he employs a kind of approximation and trial, of which it would be extremely difficult to give an extract; and then, by increasing the diameter of the vessel and of the hole to infinity, he accommodates his reasoning to the case of a plane surface exposed to an indefinitely extended stream of fluid; and lastly, giving to the little circular surface the motion which he had before ascribed to the fluid, he says, that the resistance to a plane surface moving through an unelastic continuous fluid, is equal to the weight of a column of the fluid whose height is one-half of that necessary for acquiring the velocity; and he says, that the resistance of a globe is, in this case, the same with that of a cylinder of the same diameter. The resistance, therefore, of the cylinder or circle is four times less, and that of the globe is twice less than their resistances on a rare elastic medium.

47 Liable to great objections,

But this determination, though founded on principles or assumptions, which are much nearer to the real state of things, is liable to great objections. It depends on his method for ascertaining the velocity of the issuing fluid; a method extremely ingenious, but defective. The cataract, which he supposes, cannot exist as he supposes, descending by the full action of gravity, and surrounded by a funnel of stagnant fluid. For, in such circumstances, there is nothing to balance the hydrostatical pressure of this surrounding fluid; because the whole pressure of the central cataract is employed in producing its own descent. In the next place, the pressure which he determines is beyond all doubt only half of what is observed on a plane surface in all our experiments. And, in the third place, it is repugnant to all our experience, that the resistance of a globe or of a pointed body is as great as that of its circular base. His reasons are by no means convincing. He supposes them placed in a tube or canal; and since they are supposed of the same diameter, and therefore leave equal spaces at their sides, he concludes, that because the water escapes by their sides with the same velocity, they will have the same resistance. But this is by no means a necessary consequence. Even if the water should be allowed to exert equal pressures on them, the pressures being perpendicular to their surfaces, and these surfaces being inclined to the axis, while in the case of the base of a cylinder it is in the direction of the axis, there must be a difference in the accumulated or compound pressure in the direction of the axis. He indeed says, that in the case of the cylinder or the circle obstructing the canal, a quantity of water remains stagnant on its upper surface; viz. all the water whose motion would not contribute to the most ready passage of the fluid between the cylinder and the sides of the canal or tube; and that this water may be considered as frozen. If this be the case, it is indifferent what is the form of the body that is covered with this mass of frozen or stagnant water. It may be a hemisphere or a cone; the resistance will be the same.—But Newton by no means assigns, either with precision or with distinct evidence, the form and magnitude of this stagnant water, so as to give confidence in the results. He contents himself with saying, that it is that water whose motion is not necessary or cannot contribute to the most easy passage of the water.

There remains, therefore, many imperfections in this theory. But notwithstanding these defects, we cannot but admire the efforts and sagacity of this great philosopher, who, after having discovered so many sublime truths of mechanical nature, ventured to trace out a path for the solution of a problem which no person had yet attempted to bring within the range of mathematical investigation. And his solution, though inaccurate, shines throughout with that inventive genius and that fertility of resource, which no man ever possessed in so eminent a degree. Their disparagement.

Those who have attacked the solution of Sir Isaac Newton have not been more successful. Most of them, instead of principles, have given a great deal of calculus; and the chief merit which any of them can claim, is that of having deduced some single proposition which happens to quadrate with some single case of experiment, while their general theories are either inapplicable, from difficulty and obscurity, or are discordant with more general observation.

We must, however, except from this number Daniel Bernoulli, who was not only a great geometer, but one of the first philosophers of the age. He possessed all the talents, and was free from the faults of that celebrated family; and while he was the mathematician of Europe who penetrated farthest in the investigation of this great problem, he was the only person who felt, or at least who acknowledged, its great difficulty.

49 Bernoulli's general rule deduced on hypothesis.

In the 2d volume of the *Comment. Petropol.* 1727, he proposes a formula for the resistance of fluids, deduced from considerations quite different from those on which Newton founded his solution. But he delivers it with modest diffidence; because he found that it gave a resistance four times greater than experiment. In the same dissertation he determines the resistance of a sphere to be one half of that of its great circle. But in his subsequent theory of Hydrodynamics (a work which must ever rank among the first productions of the age, and is equally eminent for refined and elegant mathematics, and ingenious and original thoughts in dynamics), he calls this determination in question. It is indeed founded on the same hypothetical principles which have been unskilfully detached from the rest of Newton's physics, and made the ground-work of all the subsequent theories on this subject.

In 1741 Mr Daniel Bernoulli published another dis-

Resistance.

50 He treats the subject in a particular case with great precision.

fertation (in the 8th volume of the *Com. Petropol.*) on the action and resistance of fluids, limited to a very particular case; namely, to the impulse of a vein of fluid falling perpendicularly on an infinitely extended plane surface. This he demonstrates to be equal to the weight of a column of the fluid whose base is the area of the vein, and whose height is twice the fall producing the velocity. This demonstration is drawn from the true principles of mechanics and the acknowledged laws of hydraulics, and may be received as a strict physical demonstration. As it is the only proposition in the whole theory that has as yet received a demonstration accessible to readers not versant in all the refinement of modern analysis; and as the principles on which it proceeds will undoubtedly lead to a solution of every problem which can be proposed, once that our mathematical knowledge shall enable us to apply them—we think it our duty to give it in this place, although we must acknowledge, that this problem is so very limited, that it will hardly bear an application to any case that differs but a little from the express conditions of the problem. There do occur cases however in practice, where it may be applied to very great advantage.

Daniel Bernoulli gives two demonstrations; one of which may be called a popular one, and the other is more scientific and introductory to further investigation. We shall give both.

51 Determines the action exerted in the efflux of the vein of fluid.

Bernoulli first determines the whole action exerted in the efflux of the vein of fluid. Suppose the velocity of efflux v is that which would be acquired by falling through the height h. It is well known that a body moving during the time of this fall with the velocity v would describe a space $2h$. The effect, therefore, of the hydraulic action is, that in the time t of the fall h, there issues a cylinder or prism of water whose base is the cross section s or area of the vein, and whose length is $2h$. And this quantity of matter is now moving with the velocity v. The quantity of motion, therefore, which is thus produced is $2shv$; and this quantity of motion is produced in the time t. And this is the accumulated effect of all the expelling forces, estimated in the direction of the efflux. Now, to compare this with the exertion of some pressing power with which we are familiarly acquainted, let us suppose this pillar $2sh$ to be frozen, and, being held in the hand, to be dropped. It is well known, that in the time t it will fall through the height h, and will acquire the velocity v, and now possesses the quantity of motion $2shv$—and all this is the effect of its weight. The weight, therefore, of the pillar $2sh$ produces the same effect, and in the same time, and (as may easily be seen) in the same gradual manner, with the expelling forces of the fluid in the vessel, which expelling forces arise from the pressure of all the fluid in the vessel. Therefore the accumulated hydraulic pressure, by which a vein of a heavy fluid is forced out through an orifice in the bottom or side of a vessel, is equal (when estimated in the direction of the efflux) to the weight of a column of the fluid, having for its base the section of the vein, and twice the fall productive of the velocity of efflux for its height.

Plate CCXXXVI.

Now let ABDC (fig. 11.) be a quadrangular vessel with upright plane sides, in one of which is an orifice EF. From every point of the circumference of this orifice, suppose horizontal lines Ee, Ff, &c. which will mark a similar surface on the opposite side of the vessel. Suppose the orifice EF to be shut. There can be no doubt but that the surfaces EF and ef will be equally pressed in opposite directions. Now open the orifice EF; the water will rush out, and the pressure on EF is now removed. There will therefore be a tendency in the vessel to move back in the direction Ee. And this tendency must be precisely equal and opposite to the whole effort of the expelling forces. This is a conclusion as evident as any proposition in mechanics. It is thus that a gun recoils and a rocket rises in the air; and on this is founded the operation of Mr Parents or Dr Barker's mill, described in all treatises of mechanics, and most learnedly treated by Euler in the Berlin Memoirs.

Now, let this stream of water be received on a circular plane MN, perpendicular to its axis, and let this circular plane be of such extent, that the vein escapes from its sides in an infinitely thin sheet, the water flowing off in a direction parallel to the plane. The vein by this means will expand into a trumpet-like shape, having curved sides, EKG,FLH. We abstract at present the action of gravity which would cause the vein to bend downwards, and occasion a greater velocity at H than at G; and we suppose the velocity equal in every point of the circumference. It is plain, that if the action of gravity be neglected after the water has issued through the orifice EF, the velocity in every point of the circumference of the plane MN will be that of the efflux through EF.

Now, because EKG is the natural shape assumed by the vein, it is plain, that if the whole vein were covered by a tube or mouth-piece, fitted to its shape, and perfectly polished, so that the water shall glide along it, without any friction (a thing which we may always suppose), the water will exert no pressure whatever on this trumpet mouth-piece. Lastly, let us suppose that the plane MN is attached to the mouth-piece by some bits of wire, so as to allow the water to escape all round by the narrow chink between the mouth-piece and the plane: We have now a vessel consisting of the upright part ABDC, the trumpet GKEFLH, and the plane MN; and the water is escaping from every point of the circumference of the chink GHNM with the velocity v. If any part of this chink were shut up, there would be a pressure on that part equivalent to the force of efflux from the opposite part. Therefore, when all is open, these efforts of efflux balance each other all round. There is not therefore any tendency in this compound vessel to move to any side. But take away the plane MN, and there would immediately arise a pressure in the direction Ee equal to the weight of the column $2sh$. This is therefore balanced by the pressure on the circular plane MN, which is therefore equal to this weight, and the proposition is demonstrated.

A number of experiments were made by Professor Kraft at St Petersburg, by receiving the vein on a plane MN (fig. 11.) which was fastened to the arm of a balance OPQ, having a scale R hanging on the opposite arm. The resistance or pressure on the plane was measured by weights put into the scale R; and the velocity of the jet was measured by means of the distance KH, to which it spouted on a horizontal plane.

The

Resistance.

52 Difference between this theory and experiments accounted for.

The results of these experiments were as conformable to the theory as could be wished. The resistance was always a little less than what the theory required, but greatly exceeded its half; the result of the generally received theories. This defect should be expected; for the demonstration supposes the plane MN to be infinitely extended, so that the film of water which issues through the chink may be accurately parallel to the plane. This never can be completely effected. Also it was supposed, that the velocity was justly measured by the amplitude of the parabola EGK. But it is well known that the very putting the plane MN in the way of the jet, though at the distance of an inch from the orifice, will diminish the velocity of the efflux through this orifice. This is easily verified by experiment. Observe the time in which the vessel will be emptied when there is no plane in the way. Repeat the experiment with the plane in its place; and more time will be necessary. The following is a note of a course of experiments, taken as they stand, without any selection.

	N° 1	2	3	4	5	6
Resist. by theory	1701	1720	1651	1602	1528	1072
Resist. by experiment	1443	1463	1486	1401	1403	1021
Difference	258	257	165	201	125	51

In order to demonstrate this proposition in such a manner as to furnish the means of investigating the whole mechanism and action of moving fluids, it is necessary to premise an elementary theorem of curvilineal motions.

Plate CCCCXXXVI.

If a particle of matter describes a curve line ABCE (fig. 13.) by the continual action of deflecting forces, which vary in any manner, both with respect to intensity and direction, and if the action of these forces, in every point of the curve, be resolved into two directions, perpendicular and parallel to the initial direction AK; then,

1. The accumulated effect of the deflecting forces, estimated in a direction AD perpendicular to AK, is to the final quantity of motion as the sine of the final change of direction is to radius.

53 His proposition demonstrated.

Let us first suppose that the accelerating forces act by starts, at equal intervals of time, when the body is in the points A, B, C, E. And let AN be the deflecting force, which, acting at A, changes the original direction AK to AB. Produce AB till BH = AB, and complete the parallelogram BFCH. Then FB is the force which, by acting at B, changed the motion BH (the continuation of AB) to BC. In like manner make C*b* (in BC produced) equal to BC, and complete the parallelogram C*f*E*b*. C*f* is the deflecting force at C, &c. Draw BO parallel to AN, and GBK perpendicular to AK. Also draw lines through C and E perpendicular to AK, and draw through B and C lines parallel to AK. Draw also HL, *bl* perpendicular, and FG, HI, *bi*, parallel to AK.

It is plain that BK is BO or AN estimated in the direction perpendicular to AK, and that BG is BF estimated in the same way. And since BH = AB, HL or IM is equal to BK. Also CI is equal to BG. Therefore CM is equal to AP+BG. By similar reasoning it appears that E*m* = E*i*+*bl*, = C*g*+CM, = C*g*+BG, +AP.

Therefore if CE be taken for the measure of the final velocity or quantity of motion, E*m* will be the accumulated effect of the deflecting forces estimated in the direction AD perpendicular to AK. But E*m* is to CE as the sine of *m*CE is to radius; and the angle *m*CE is the angle contained between the initial and final directions, because C*m* is parallel to AK. Now let the intervals of time diminish continually and the frequency of the impulses increase. The deflection becomes ultimately continuous, and the motion curvilineal, and the proposition is demonstrated.

Resistance

We see that the initial velocity and its subsequent changes do not affect the conclusion, which depends entirely on the final quantity of motion.

2. The accumulated effect of the accelerating forces, when estimated in the direction AK of the original motion, or in the opposite direction, is equal to the difference between the initial quantity of motion and the product of the final quantity of motion by the cosine of the change of direction.

For C*m* = C *l* − *m l*, = BM − *f q*
BM = BL − ML, = AK − FG
AK = AO − OK, = AO − PN.

Therefore PN+FG+*f*Q (the accumulated impulse in the direction OA) = AO − CM, = AO − CE × cosine of ECM.

Cor. 1. The same action, in the direction opposite to that of the original motion, is necessary for causing a body to move at right angles to its former direction as for stopping its motion. For in this case, the cosine of the change of direction is = *o*, and AO − CE × cosine ECM = AO − *o*, = AO, = the original motion.

Cor. 2. If the initial and final velocities are the same, the accumulated action of the accelerating forces, estimated in the direction OA, is equal to the product of the original quantity of motion by the versed sine of the change of direction.

The application of these theorems, particularly the second, to our present purpose is very obvious. All the filaments of the jet were originally moving in the direction of its axis, and they are finally moving along the resisting plane, or perpendicular to their former motion. Therefore their transverse forces in the direction of the axis are (*in cumulo*) equal to the force which would stop the motion. For the aggregate of the simultaneous forces of every particle in the whole filament is the same with that of the successive forces of one particle, as it arrives at different points of its curvineal path. All the transverse forces, estimated in a direction perpendicular to the axis of the vein, precisely balance and sustain each other; and the only forces which can produce a sensible effect are those in a direction parallel to the axis. By these all the inner filaments are pressed towards the plane MN, and must be withstood by it. It is highly probable, nay certain, that there is a quantity of stagnant water in the middle of the vein which sustains the pressures of the moving filaments without it, and transmits it to the solid plane. But this does not alter the case. And, fortunately, it is of no consequence what changes happen in the velocities of the particles while each is describing its own curve. And it is from this circumstance, peculiar to this particular case of perpendicular impulse, that we are able to draw the conclusion. It is by no means difficult to demonstrate that the velocity of the external surface of this jet is constant, and indeed of every jet which is not acted on by external forces after it has quitted the orifice: but this discussion is quite unnecessary here. It is however extremely difficult to ascertain, even in this most simple

Resistance.

case, what is the velocity of the internal filaments in the different points of their progress.

Such is the demonstration which Mr Bernouilli has given of this proposition. Limited as it is, it is highly valuable, because derived from the true principles of hydraulics.

He hoped to render it more extensive and applicable to oblique impulses, when the axis AC of the vein (fig. 13. n° 2.) is inclined to the plane in an angle ACN. But here all the simplicity of the case is gone, and we are now obliged to ascertain the motion of each filament. It might not perhaps be impossible to determine what must happen in the plane of the figure, that is, in a plane passing through the axis of the vein, and perpendicular to the plane MN. But even in this case it would be extremely difficult to determine how much of the fluid will go in the direction EKG, and what will go in the path FLH, and to ascertain the form of each filament, and the velocity in its different points. But in the real state of the case, the water will dissipate from the centre C on every side; and we cannot tell in what proportions. Let us however consider a little what happens in the plane of the figure, and suppose that all the water goes either in the course EKG or in the course FLH. Let the quantities of water which take these two courses have the proportions of p and π. Let $\sqrt{2a}$ be the velocity at A, $\sqrt{2b}$ be the velocity at G, and $\sqrt{2c}$ be the velocity at H. ACG and ACH are the two changes of direction, of which let c and $-c$ be the cosines. Then, adopting the former reasoning, we have the pressure of the watery plate GKEACM on the plane in the direction AC $= \frac{p}{p+\pi} \times \overline{2a - 2cb}$, and the pressure of the plate HLFACN $= \frac{\pi}{p+\pi} \times \overline{2a + 2c}$, and their sum $= \frac{p \times \overline{2a - 2cb} + \pi \times \overline{2a + 2c}}{p+\pi}$; which being multiplied by the sine of ACM or $\sqrt{1-c^2}$, gives the pressure perpendicular to the plane MN $= \frac{p \times \overline{2a - 2cb} + \pi \times \overline{2a + 2cb}}{p+\pi} \sqrt{1-c^2}$.

But there remains a pressure in the direction perpendicular to the axis of the vein, which is not balanced, as in the former case, by the equality on opposite sides of the axis. The pressure arising from the water which escapes at G has an effect opposite to that produced by the water which escapes at H When this is taken into account, we shall find that their joint efforts perpendicular to AC are $\frac{p-\pi}{p+\pi} \times 2a\sqrt{1-c^2}$, which, being multiplied by the cosine of ACM, gives the action perpendicular to MN $= \frac{p-\pi}{p+\pi} \times 2ac\sqrt{1-c^2}$.

The sum or joint effort of all these pressures is $\frac{p \times \overline{2a - 2cb} + \pi \times \overline{2a + 2cb}}{p+\pi} \sqrt{1-c^2} + \frac{p-\pi}{p+\pi} \times 2ac\sqrt{1-c^2}$.

Thus, from this case, which is much simpler than can happen in nature, seeing that there will always be a lateral efflux, the determination of the impulse is as uncertain and vague as it was sure and precise in the former case.

54 Its theory remoted vain to render general.

It is therefore without proper authority that the absolute impulse of a vein of fluid on a plane which receives it wholly, is asserted to be proportional to the sine of incidence. If indeed we suppose the velocity in G and H are equal to that at A, then $b = \beta$, $= a$, and the whole impulse is $2a\sqrt{1-c^2}$, as is commonly supposed. But this cannot be. Both the velocity and quantity at H are less than those at G. Nay, frequently there is no efflux on the side H when the obliquity is very great. We may conclude in general, that the oblique impulse will always bear to the direct impulse a greater proportion than that of the sine of incidence to radius. If the whole water escapes at G, and none goes off laterally, the pressure will be $\overline{2a + 2ac - 2bc} \times \sqrt{1-c^2}$. The experiments of the Abbé Bossut show in the plainest manner that the pressure of a vein, striking obliquely on a plane which receives it wholly, diminishes faster than in the ratio of the square of the sine of incidence; whereas, when the oblique plane is wholly immersed in the stream, the impulse is much greater than in this proportion, and in great obliquities is nearly as the sine.

Nor will this proposition determine the impulse of a fluid on a plane wholly immersed in it, even when the impulse is perpendicular to the plane. The circumstance is now wanting on which we can establish a calculation, namely, the angle of final deflection. Could this be ascertained for each filament, and the velocity of the filament, the principles are completely adequate to an accurate solution of the problem. In the experiments which we mentioned to have been made under the inspection of Sir Charles Knowles, a cylinder of six inches diameter was exposed to the action of a stream moving precisely one foot per second; and when certain deductions were made for the water which was held adhering to the posterior base (as will be noticed afterwards), the impulse was found equal to $3\frac{1}{5}$ ounces avoirdupois. There were 36 coloured filaments distributed on the stream, in such situations as to give the most useful indications of their curvature. It was found necessary to have some which passed under the body and some above it; for the form of these filaments, at the same distance from the axis of the cylinder, was considerably different: and those filaments which were situated in planes neither horizontal nor vertical took a double curvature. In short, the curves were all traced with great care, and the deflecting forces were computed for each, and reduced to the direction of the axis; and they were summed up in such a manner as to give the impulse of the whole stream. The deflections were marked as far a-head of the cylinder as they could be assuredly observed. By this method the impulse was computed to be $2\frac{15}{16}$ ounces, differing from observation $\frac{1}{16}$ of an ounce, or about $\frac{1}{16}$ of the whole; a difference which may most reasonably be ascribed to the adhesion of the water, which must be most sensible in such small velocities. These experiments may therefore be considered as giving all the confirmation that can be desired of the justness of the principles. This indeed hardly admits of a doubt: but, alas! it gives us but small assistance; for all this is empirical, in as far as it leaves us in every case the task of observing the form of the curves and the velocities in their different points. To derive service from this most judicious method of Daniel Bernoulli, we must discover some method of determining,

à priori,

Resistance. *a priori*, what will be the motion of the fluid whose course is obstructed by a body of any form. And here we cannot omit taking notice of the casual observation of Sir Isaac Newton when attempting to determine the resistance of the plane surface or cylinder, or sphere exposed to a stream moving in a canal. He says that the form of the resisting surface is of less consequence, because there is always a quantity of water stagnant upon it, and which may therefore be considered as frozen; and he therefore considers that water only whose motion is necessary for the most expeditious discharge of the water in the vessel. He endeavours to discriminate that water from the rest; and although it must be acknowledged that the principle which he assumes for this purpose is very gratuitous, because it only shows that *if certain portions of the water*, which he determines very ingeniously, were really frozen, the rest will issue as he says, and will exert the pressure which he assigns; still we must admire his fertility of resource, and his sagacity in thus foreseeing what subsequent observation has completely confirmed. We are even disposed to think, that in this casual observation Sir Isaac Newton has pointed out the only method of arriving at a solution of the problem; and that if we could discover *what motions are not necessary for the most expeditious passage of the water*, and could thus determine the form and magnitude of the stagnant water which adheres to the body, we should much more easily ascertain the real motions which occasion the observed resistance. We are here disposed to have recourse to the economy of nature, the improper use of which we have sometimes taken the liberty of reprehending. Mr Maupertuis published as a great discovery his principle of smallest action, where he showed that in all the mutual actions of bodies the quantity of action was a minimum; and he applied this to the solution of many difficult problems with great success, imagining that he was really reasoning from a contingent law of nature, selected by its infinitely wise Author, viz. that in all occasions there is the smallest possible exertion of natural powers. Mr D'Alembert has, however, shown (vid. *Encyclopedié Françoise*, ACTION) that this was but a whim, and that the minimum observed by Maupertuis is merely a minimum of calculus, peculiar to a formula which happens to express a combination of mathematical quantities which frequently occurs in our way of considering the phenomena of nature, but which is no natural measure of action.

55 A method recommended for obtaining a general theory.

But the chevalier D'Arcy has shown, that in the trains of natural operations which terminate in the production of motion in a particular direction, the intermediate communications of motion are such that the smallest possible quantity of motion is produced. We seem obliged to conclude, that this law will be observed in the present instance; and it seems a problem not above our reach to determine the motions which result from it. We would recommend the problem to the eminent mathematicians in some simple case, such as the proposition already demonstrated by Daniel Bernoulli, or the perpendicular impulse on a cylinder included in a tubular canal; and if they succeed in this, great things may be expected. We think that experience gives great encouragement. We see that the resistance to a plane surface is a very small matter greater than the weight of a column of the fluid having the fall productive of the velocity for its height, and the small excess is most probably owing to adhesion, and the measure of the real resistance is probably precisely this weight. The velocity of a spouting fluid was found, in fact, to be that acquired by falling from the surface of the fluid; and it was by looking at this, as at a pole star, that Newton, Bernoulli, and others, have with great sagacity and ingenuity discovered much of the laws of hydraulics, by searching for principles which would give this result. We may hope for similar success. Resistance

In the mean time, we may receive this as a physical truth, that the perpendicular impulse or resistance of a plane surface, wholly immersed in the fluid, is equal to the weight of the column having the surface for its base, and the fall producing the velocity for its height.

This is the medium result of all experiments made in these precise circumstances. And it is confirmed by a set of experiments of a kind wholly different, and which seem to point it out more certainly as an immediate consequence of hydraulic principles.

56 Experiment by Mr Pitot's tube. Plate CCCCXXXVI

If Mr Pitot's tube be exposed to a stream of fluid issuing from a reservoir or vessel, as represented in fig. 14. with the open mouth I pointed directly against the stream, the fluid is observed to stand at K in the upright tube, precisely on a level with the fluid AB in the reservoir. Here is a most unexceptionable experiment, in which the impulse of the stream is actually opposed to the hydrostatical pressure of the fluid on the tube. Pressure is in this case opposed to pressure, because the issuing fluid is deflected by what stays in the mouth of the tube, in the same way in which it would be deflected by a firm surface. We shall have occasion by and by to mention some most valuable and instructive experiments made with this tube.

57 Euler's theory.

It was this which suggested to the great mathematician Euler another theory of the impulse and resistance of fluids, which must not be omitted, as it is applied in his elaborate performance On the Theory of the Construction and Working of Ships, in two volumes 4to, which was afterwards abridged and used as a text-book in some marine academies. He supposes a stream of fluid ABCD (fig. 15.), moving with any velocity, to strike the plane BD perpendicularly, and that part of it goes through a hole EF, forming a jet EGHF. Mr Euler says, that the velocity of this jet will be the same with the velocity of the stream. Now compare this with an equal stream issuing from a hole in the side of a vessel with the same velocity. The one stream is urged out by the pressure occasioned by the impulse of the fluid; the other is urged out by the pressure of gravity. The effects are equal, and the modifying circumstances are the same. The causes are therefore equal, and the pressure occasioned by the impulse of a stream of fluid, moving with any velocity, is equal to the weight of a column of fluid whose height is productive of this velocity, &c. He then determines the oblique impulse by the resolution of motion, and deduces the common rules of resistance, &c.

But all this is without just grounds. This gentleman was always satisfied with the slightest analogies which would give him an opportunity of exhibiting his great dexterity in algebraic analysis, and was not afterwards startled by any discordancy with observation. *Analysi magis fidendum* is a frequent assertion with him.

Though

Resistance. Though he wrote a large volume, containing a theory of light and colours totally opposite to Newton's, he has published many dissertations on optical phenomena on the Newtonian principles, expressly because his own principles *non ita facile ansam præbebant analysi instruendæ*.

Not a shadow of argument is given for the leading principle in this theory, *viz.* that the velocity of the jet is the same with the velocity of the stream. None can be given, but saying that the pressure is equivalent to its production; and this is assuming the very thing he labours to prove. The matter of fact is, that the velocity of the jet is greater than that of the stream, and may be greater almost in any proportion. Which curious circumstance was discovered and ingeniously explained long ago by Daniel Bernoulli in his *Hydrodynamica*. It is evident that the velocity must be greater. Were a stream of sand to come against the plane, what goes through would indeed preserve its velocity unchanged: but when a real fluid strikes the plane, all that does not pass through is deflected on all sides; and by these deflections forces are excited, by which the filaments which surround the cylinder immediately fronting the hole are made to press this cylinder on all sides, and as it were squeeze it between them: and thus the particles at the hole must of necessity be accelerated, and the velocity of the jet must be greater than that of the stream. We are disposed to think that, in a fluid perfectly incompressible, the velocity will be doubled, or at least increased in the proportion of 1 to $\sqrt{2}$. If the fluid is in the smallest degree compressible, even in the very small degree that water is, the velocity at the first impulse may be much greater. D. Bernoulli found that a column of water moving 5 feet per second, in a tube some hundred feet long, produced a velocity of 136 feet per second in the first moment.

There being this radical defect in the theory of Mr Euler, it is needless to take notice of its total insufficiency for explaining oblique impulses and the resistance of curvilineal prows.

We are extremely sorry that our readers are deriving so little advantage from all that we have said; and that having taken them by the hand, we are thus obliged to grope about, with only a few scattered rays of light to direct our steps. Let us see what assistance we can get from Mr d'Alembert, who has attempted a solution of this problem in a method entirely new and extremely ingenious. He saw clearly that all the followers of Newton had forsaken the path which he had marked out for them in the second part of his investigation, and had merely amused themselves with the mathematical discussions with which his introductory hypothesis gave them an opportunity of occupying themselves. He paid the deserved tribute of applause to Daniel Bernoulli for having introduced the notion of pure pressure as the chief agent in this business; and he saw that he was in the right road, and that it was from hydrostatical principles alone that we had any chance of explaining the phenomena of hydraulics. Bernoulli had only considered the pressures which were excited in consequence of the curvilineal motions of the particles. Mr d'Alembert even thought that these pressures were not the consequences, but the causes, of these curvilineal motions. No internal motion can happen in a fluid but in consequence of an unbalanced pressure; and every such motion will produce an inequality of pressures, which will determine the succeeding motions. He therefore endeavoured to reduce all to the discovery of those disturbing pressures, and thus to the laws of hydrostatics. He had long before this hit on a very refined and ingenious view of the action of bodies on each other, which had enabled him to solve many of the most difficult problems concerning the motions of bodies, such as the centre of oscillation, [illegible], the precession of the equinoxes, &c. &c. with great facility and elegance. He saw that the same principle would apply to the action of fluid bodies. The principle is this.

"*In whatever manner any number of bodies are supposed to act on one another, and by their action come to change their present motions, if we consider that the motion which each body would have in the following instant (if it became free), is resolved into two other motions; one of which is the motion which it really takes in the following instant; the other will be such, that if each body had no other motion but this second, the whole system would have remained in equilibrio.*" We here observe, that "the motion which each body would have in the following instant, if it became free," is a continuation of the motion which it has in the first instant. It may therefore perhaps be better expressed thus:

If the motions of bodies, anyhow acting on each other, be considered in two contiguous instants, and if we consider the motion which it has in the first instant as compounded of two others, one of which is the motion which it actually takes in the second instant, the other is such, that if each body had only those second motions, the whole system would have remained in equilibrio.

The proposition itself is evident. For if these second motions be not such as that an equilibrium of the whole system would result from them, the other component motions would not be those which the bodies really have after the change; for they would necessarily be altered by their unbalanced motions. See D'Alembert *Essai de Dynamique*.

Assisted by this incontestable principle, Mr d'Alembert demonstrates, in a manner equally new and simple, those propositions which Newton had so cautiously deduced from his hypothetical fluid, showing that they were not limited to this hypothesis, *viz.* that the motions produced by similar bodies, similarly projected in them, would be similar; that whatever were the pressures, the curves described by the particles would be the same; and that the resistances would be proportional to the squares of the velocities. He then comes to consider the fluid as having its motions constrained by the form of the canal or by solid obstacles interposed.

60 Summary of his fundamental position.

We shall here give a summary account of his fundamental proposition.

It is evident, that if the body ADCE (fig. 16.) did not form an obstruction to the motion of the water, the particles would describe parallel lines TF, OK, PS, &c. But while yet at a distance from the body in F, K, S, they gradually change their directions, and describe the curves FM, K[illegible], S[illegible], [illegible] as they are nearer to the body. At a certain distance ZY this curvature will be insensible, and the fluid included in the space ZYHQ will move uniformly as if the solid body were not there. The motions on the other side of the axis AC will be the same; and we need only attend

Plate CCCCXXXVI.

Resistance. attend to one half, and we shall consider these as in a state of permanency.

No body changes either its direction or velocity otherwise than by insensible degrees: therefore the particle which is moving in the axis will not reach the vertex A of the body, where it behoved to deflect instantaneously at right angles. It will therefore begin to be deflected at some point F a-head of the body, and will describe a curve FM, touching the axis in F, and the body in M; and then, gliding along the body, will quit it at some point L, describing a tangent curve, which will join the axis again (touching it) in R; and thus there will be a quantity of stagnant water FAM before or a-head of the body, and another LCR behind or astern of it.

Let a be the velocity of a particle of the fluid in any instant, and a' its velocity in the next instant. The velocity a may be considered as compounded of a' and a''. If the particles tended to move with the velocities a' only, the whole fluid would be in equilibrio (general principle), and the pressure of the fluid would be the same as if all were stagnant, and each particle were urged by a force $\frac{a''}{t}$, t expressing an indefinitely small moment of time. (*N. B.* $\frac{a''}{t}$ is the proper expression of the accelerating force, which, by acting during the moment t, would generate the velocity a''; and a'' is supposed an indeterminate quantity, different perhaps for each particle). Now let a be supposed constant, or $a = a'$. In this case $a = o$. That is to say, no pressure whatever will be exerted on the solid body unless there happen changes in the velocities or directions of the particles.

Let a and a' then be the motions of the particles in two consecutive instants. They would be in equilibrio if urged only by the forces $\frac{a''}{t}$. Therefore if γ be the point where the particles which describe the curve FM begin to change their velocity, the pressure in D would be equal to the pressure which the fluid contained in the canal γ FMD would exert, if each particle were solicited by its force $\frac{a''}{t}$. The question is therefore reduced to the finding the curvature in the canal γ FMD, and the accelerating forces $\frac{a''}{t}$ in its different parts.

It appears, in the first place, that no pressure is exerted by any of the particles along the curve FM: for suppose that the particle a (fig. 17.) describes the indefinitely small straight line $a\,b$ in the first instant, and $b\,c$ in the second instant; produce $a\,b$ till $b\,d = a\,b$, and joining $d\,c$, the motion $a\,b$ or $b\,d$ may be considered as composed of $b\,c$, which the particle really takes in the next instant, and a motion $d\,c$ which should be destroyed. Draw $b\,i$ parallel to $d\,c$, and $i\,e$ perpendicular to $b\,c$. It is plain that the particle b, solicited by the forces $b\,e$, $e\,i$ (equivalent to $d\,c$) should be in equilibrio. This being established, $b\,e$ must be $= o$, that is, there will be no accelerating or retarding force at b; for if there be, draw $b\,m$ (fig. 18.) perpendicular to b F, and the parallel $n\,q$ infinitely near it. The part $b\,n$ of the fluid contained in the canal $b\,n\,q\,m$ would sustain some pressure from b towards n, or from n towards b. Therefore since the fluid in this stagnant canal should be in equilibrio, there must also be some action, at least in one of the parts $b\,m$, $m\,q$, $q\,n$, to counterbalance the action on the part $b\,n$. But the fluid is stagnant in the space FAM (in consequence of the law of continuity). Therefore there is no force which can act on $b\,m$, $m\,q$, $q\,n$; and the pressure in the canal in the direction $b\,n$ or $n\,b$ is nothing, or the force $b\,e = o$, and the force $i\,e$ is perpendicular to the canal; and there is therefore no pressure in the canal FM, except what proceeds from the part γ F, or from the force $e\,i$; which last being perpendicular to the canal, there can be no force exerted on the point M, but what is propagated from the part γ F.

The velocity therefore in the canal FM is constant if finite, or infinitely small if variable: for, in the first case, the force $b\,e$ would be absolutely nothing; and in the second case, it would be an infinitesimal of the second order, and may be considered as nothing in comparison with the velocity, which is of the first order. We shall see by and by that the last is the real state of the case. Therefore the fluid, before it begins to change its direction in F, begins to change its velocity in some point γ a-head of F, and by the time that it reaches F its velocity is as it were annihilated.

Cor. 1. Therefore the pressure in any point D arises both from the retardations in the part γ F, and from the particles which are in the canal MD: as these last move along the surface of the body, the force $\frac{a''}{t}$, destroyed in every particle, is compounded of two others, one in the direction of the surface, and the other perpendicular to it; call these p and p'. The point D is pressed perpendicularly to the surface MD; 1st, by all the forces p in the curve MD; 2d, by the force p' acting on the single point D. This may be neglected in comparison of the indefinite number of the others: therefore taking in the arch MD, an infinitely small portion N m, $= s$, the pressure on D, perpendicular to the surface of the body, will be $= \int p\,s$; and this fluent must be so taken as to be $= o$ in the point M.

Cor. 2. Therefore, to find the pressure on D, we must find the force p on any point N. Let u be the velocity of the particle N, in the direction N m in any instant, and $u + \dot{u}$ its velocity in the following instant; we must have $p = \frac{-\dot{u}}{t}$. Therefore the whole question is reduced to finding the velocity u in every point N, in the direction N m.

And this is the aim of a series of propositions which follow, in which the author displays the most accurate and precise conception of the subject, and great address and elegance in his mathematical analysis. He at length brings out an equation which expresses the pressure on the body in the most general and unexceptionable manner. We cannot give an abstract, because the train of reasoning is already concise in the extreme: nor can we even exhibit the final equation; for it is conceived in the most refined and abstruse form of indeterminate functions, in order to embrace every possible circumstance. But we can assure our readers, that it truly expresses the solution of the problem. But, alas! it is of

Resistance.

62 On the imperfect state of mathematics, it is less.

no use. So imperfect is our mathematical knowledge, that even Mr d'Alembert has not been able to exemplify the application of the equation to the simplest case which can be proposed, such as the direct impulse on a plane surface wholly immersed in the fluid. All that he is enabled to do, is to apply it (by some modifications and substitutions which take it out of its state of extreme generality) to the direct impulse of a vein of fluid on a plane which deflects it wholly, and thus to show its conformity to the solution given by Daniel Bernoulli, and to observation and experience. He shows, that this impulse (independent of the deficiency arising from the plane's not being of infinite extent) is somewhat less than the weight of a column whose base is the section of the vein, and whose height is twice the fall necessary for communicating the velocity. This great philosopher and geometer concludes by saying, that he does not believe that any method can be found for solving this problem that is more direct and simple; and imagines, that if the deductions from it shall be found not to agree with experiment, we must give up all hopes of determining the resistance of fluids by theory and analytical calculus. He says *analytical calculus;* for all the physical principles on which the calculus proceeds are rigorously demonstrated, and will not admit of a doubt. There is only one hypothesis introduced in his investigation, and this is not a physical hypothesis, but a hypothesis of calculation. It is, that the quantities which determine the ratios of the second fluxions of the velocities, estimated in the directions parallel and perpendicular to the axis AC (fig. 16.) are functions of the abscissa AP, and ordinate PM of the curve. Any person, in the least acquainted with mathematical analysis, will see, that without this supposition no analysis or calculus whatever can be instituted. But let us see what is the *physical* meaning of this hypothesis. It is simply this, that the motion of the particle M depends on its situation only. It appears impossible to form any other opinion; and if we could form such an opinion, it is as clear as day-light that the case is desperate, and that we must renounce all hopes.

63 Mathematicians should apply to simple cases;

We are sorry to bring our labours to this conclusion; but we are of opinion, that the only thing that remains is, for mathematicians to attach themselves with firmness and vigour to some simple cases; and, without aiming at generality, to apply Mr d'Alembert's or Bernoulli's mode of procedure to the particular circumstances of the case. It is not improbable but that, in the solutions which may be obtained of these particular cases, circumstances may occur which are of a more general nature. These will be so many laws of hydraulics to be added to our present very scanty stock; and these may have points of resemblance, which will give birth to laws of still greater generality. And we repeat our expression of hopes of some success, by endeavouring to determine, in some simple cases, the *minimum possibile* of motion. The attempts of the Jesuit commentators on the *Principia* to ascertain this on the Newtonian hypothesis do them honour, and have really given us great assistance in the particular case which came through their hands.

64 And multiply experiments.

And we should multiply experiments on the resistance of bodies. Those of the French academy are undoubtedly of inestimable value, and will always be appealed to. But there are circumstances in those experiments which render them more complicated than is proper for a general theory, and which therefore limit the conclusions which we wish to draw from them. The bodies were floating on the surface. This greatly modifies the deflections of the filaments of water, causing some to deflect laterally, which would otherwise have remained in one vertical plane; and this circumstance also necessarily produced what the academicians called the *remou*, or accumulation on the anterior part of the body, and depression behind it. This produced an additional resistance, which was measured with great difficulty and uncertainty. The effect of adhesion must also have been very considerable, and very different in the different cases; and it is of difficult calculation. It cannot perhaps be totally removed in any experiment, and it is necessary to consider it as making part of the resistance in the most important practical cases, viz. the motion of ships. Here we see that its effect is very great. Every seaman knows that the speed, even of a copper-sheathed ship, is *greatly* increased by greasing her bottom. The difference is too remarkable to admit of a doubt: nor should we be surprised at this, when we attend to the diminution of the motion of water in long pipes. A smooth pipe four and an half inches diameter, and 500 yards long, yields but one-fifth of the quantity which it ought to do independent of friction. But adhesion does a great deal which cannot be compared with friction. We see that water flowing thro' a hole in a thin plate will be increased in quantity fully one-third, by adding a little tube whose length is about twice the diameter of the hole. The adhesion therefore will greatly modify the action of the filaments both on the solid body and on each other, and will change both the forms of the curves and the velocities in different points; and this is a sort of objection to the only hypothesis introduced by d'Alembert. Yet it is only a sort of objection; for the effect of this adhesion, too, must undoubtedly depend on the situation of the particle.

65 The experiments of Robins and Borda susceptible of considerable accuracy.

The form of these experiments of the academy is ill-suited to the examination of the resistance of bodies wholly immersed in the fluid. The form of experiment adopted by Robins for the resistance of air, and afterwards by the Chevalier Borda for water, is free from these inconveniences, and is susceptible of equal accuracy. The great advantage of both is the exact knowledge which they give us of the velocity of the motion; a circumstance essentially necessary, and but imperfectly known in the experiments of Mariotte and others, who examined quiescent bodies exposed to the action of a stream. It is extremely difficult to measure the velocity of a stream. It is very different in its different parts. It is swiftest of all in the middle superficial filament, and diminishes as we recede from this towards the sides or bottom, and the rate of diminution is not precisely known. Could this be ascertained with the necessary precision, we should recommend the following form of experiment as the most simple, easy, economical, and accurate.

Plate CCCCXXXVI.

66 Simple experiment for measuring the velocity of a stream.

Let *a*, *b*, *c*, *d*, (fig. 19.) be four hooks placed in a horizontal plane at the corners of a rectangular parallelogram, the sides *a c*, *b d* being parallel to the direction of the stream ABCD, and the sides *a b*, *c d* being perpendicular to it. Let the body G be fastened to an

an axis of fine tempered steel-wire, so that the surfaces on which the fluid is to act may be inclined to the stream in the precise angle we define. Let this machine be kept in extension, which are hitched into the loops of four equal threads, suspended from the points a, b, c, d; and let H be a fifth thread, suspended from the middle of the line joining the points of suspension a, b. Let HIK be a quadrant arch, whose centre is H, and whose plane is in the direction of the stream. It is evident that the impulse on the body G will be measured (by a process well known to every mathematician) by the deviation of the thread H*e* from the vertical line HI; and this will be done without any intricacy of calculation, or any attention to the centres of gravity, of oscillation, or of percussion. These must be accurately ascertained with respect to that form in which the pendulum has always been employed for measuring the impulse or velocity of a stream. These advantages arise from the circumstance, that the axis *ef* remains always parallel to the horizon. We may be allowed to observe, by the by, that this would have been a great improvement of the beautiful experiments of Mr Robins and Dr Hutton on the velocities of cannon-shot, and would have saved much intricate calculation, and been attended with many important advantages.

The great difficulty is, as we have observed, to measure the velocity of the stream. Even this may be done in this way with some precision. Let two floating bodies be dragged along the surface, as in the experiments of the academy, at some distance from each other laterally, so that the water between them may not be sensibly disturbed. Let a horizontal bar be attached to them, transverse to the direction of their motion, at a proper height above the surface, and let a spherical pendulum be suspended from this, or let it be suspended from four points, as here described. Now let the deviation of this pendulum be noted in a variety of velocities. This will give us the law of relation between the velocity and the deviation of the pendulum. Now, in making experiments on the resistance of bodies, let the velocity of the stream, in the very filament in which the resistance is measured, be determined by the deviation of this pendulum.

It were greatly to be wished that some more palpable evidence could be found for the existence of a quantity of stagnant fluid at the anterior and posterior parts of the body. The one already given, derived from the consideration that no motion changes either its velocity or direction by finite quantities in an instant, is unexceptionable. But it gives us little information. The smallest conceivable extent of the curve FM in fig. 16. will answer this condition, provided only that it touches the axis in some point F, and the body in some point M, so as not to make a finite angle with either. But surely there are circumstances which rigorously determine the extent of this stagnant fluid. And it appears without doubt, that if there were no cohesion or friction, this space will have a determined ratio to the size of the body (the figures of the bodies being supposed similar). Suppose a plane surface AB, as in fig. 10. there can be no doubt but that the figure A*a*D*b*B will in every case be similar. But if we suppose an adhesion or tenacity which is constant, this may make a change both in the extent and its form: for its constancy of form depends on the disturbing forces being always as the squares of the velocity; and this ratio of the disturbing forces is preserved, while the inertia of the fluid is the only agent and patient in the process. But when we add to this the constant (that is, invariable) disturbing force of tenacity, a change of form and dimensions must happen. In like manner, the friction, or something analogous to friction, which produces an effect proportional to the velocity, must alter this necessary ratio of the whole disturbing forces. We may conclude, that the effect of both these circumstances will be to diminish the quantity of this stagnant fluid, by licking it away externally; and to this we must ascribe the fact, that the part FAM is never perfectly stagnant, but is generally disturbed with a whirling motion. We may also conclude, that this stagnant fluid will be more incurvated between F and M than it would have been, independent of tenacity and friction; and that the arch LR will, on the contrary, be less incurvated.—And, lastly, we may conclude, that there will be something opposite to pressure, or something which we may call *abstraction*, exerted on the posterior part of the body which moves in a tenacious fluid, or is exposed to the stream of such a fluid; for the stagnant fluid LCR adheres to the surface LC; and the passing fluid tends to draw it away both by its tenacity and by its friction. This must augment the apparent impulse of the stream on such a body; and it must greatly augment the resistance, that is, the motion lost by this body in its progress through the tenacious fluid: for the body must drag along with it this stagnant fluid, and drag it in opposition to the tenacity and friction of the surrounding fluid. The effect of this is most remarkably seen in the resistances to the motion of pendulums; and the chevalier Buat, in his examination of Newton's experiments, clearly shows that this constitutes the greatest part of the resistance.

This most ingenious writer has paid great attention to this part of the process of nature, and has laid the foundation of a theory of resistance entirely different from all the preceding. We cannot abridge it; and it is too imperfect in its present condition to be offered as a body of doctrine: but we hope that the ingenious author will prosecute the subject.

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6. Account of the Chevalier's experiments.

We cannot conclude this dissertation (which we acknowledge to be very unsatisfactory and imperfect) better, than by giving an account of some experiments of the chevalier Buat, which seem of immense consequence, and tend to give us very new views of the subject. M. Buat observed the motion of water issuing from a glass cylinder through a narrow ring formed by a bottom of smaller diameter; that is, the cylinder was open at both ends, and there was placed at its lower end a circle of smaller diameter, by way of bottom, which left a ring all around. He threw some powdered sealing wax into the water, and observed with great attention the motion of its small particles. He saw those which happened to be in the very axis of the cylinder descend along the axis with a motion pretty uniform, till they came very near the bottom; from this they continued to descend very slowly, till they were almost in contact with the bottom; they then deviated from the centre, and approached the orifice in a straight

Resistance.

straight lines and with an accelerated motion, and at last darted into the orifice with great rapidity. He had observed a thing similar to this in a horizontal canal, in which he had set up a small board like a dam or bar, over which the water flowed. He had thrown a gooseberry into the water, in order to measure the velocity at the bottom, the gooseberry being a small matter heavier than water. It approached the dam uniformly till about three inches from it. Here it almost stood still, but it continued to advance till almost in contact. It then rose from the bottom along the inside of the dam with an accelerated motion, and quickly escaped over the top.

Hence he concluded, that the water which covers the anterior part of the body exposed to the stream is not perfectly stagnant, and that the filaments recede from the axis in curves, which converge to the surface of the body as different hyperbolas converge to the same assymptote, and that they move with a velocity continually increasing till they escape round the sides of the body.

He had established (by a pretty reasonable theory, confirmed by experiment) a proposition concerning the pressure which water in motion exerts on the surface along which it glides, viz. *that the pressure is equal to that which it would exert if at rest* minus *the weight of the column whose height would produce the velocity of the rolling stream.* Consequently the pressure which the stream exerts on the surface perpendicularly exposed to it will depend on the velocity with which it glides along it, and will diminish from the centre to the circumference. This, says he, may be the reason why the impulse on a plane wholly immersed is but one half of that on a plane which deflects the whole stream.

68 Of the Mr Buat's experiments.

He contrived a very ingenious instrument for examining this theory. A square brass plate ABGF (fig. 20.) was pierced with a great number of holes, and fixed in the front of a shallow box represented edgewise in fig. 21. The back of this box was pierced with a hole c, in which was inserted the tube of glass CDE, bent square at D. This instrument was exposed to a stream of water, which beat on the brass plate. The water having filled the box through the holes, stood at an equal height in the glass tube when the surrounding water was stagnant; but when it was in motion, it always stood in the tube above the level of the smooth water without, and thus indicated the pressure occasioned by the action of the stream.

When the instrument was not wholly immersed, there was always a considerable accumulation against the front of the box, and a depression behind it. The water before it was by no means stagnant: indeed it should not be, as Mr Buat observes; for it consists of the water which was escaping on all sides, and therefore upwards from the axis of the stream, which meets the plate perpendicularly in *c* considerably under the surface. It escapes upwards; and if the body were sufficiently immersed, it would escape in this direction almost as easily as laterally. But in the present circumstances, it heaps up, till the elevation occasions it to fall off sidewise as fast as it is renewed. When the instrument was immersed more than its semidiameter under the surface, the water still rose above the level, and there was a great depression immediately behind this elevation. In consequence of this difficulty of escaping upwards, the water flows off laterally; and if the horizontal dimensions of the surface is great, this lateral efflux becomes more difficult, and requires a greater accumulation. From this it happens, that the resistance of broad surfaces equally immersed is greater than in the proportion of the breadth. A plane of two feet wide and one foot deep, when it is not completely immersed, will be more resisted than a plane two feet deep and one foot wide; for there will be an accumulation against both: and even if these were equal in height, the additional surface will be greatest in the widest body; and the elevation will be greater, because the lateral escape is more difficult.

69 Circumstances chiefly to be attended to in using this instrument.

The circumstances chiefly to be attended to are these.

The pressure on the centre was much greater than towards the border, and, in general, the height of the water in the tube DE was more than $\frac{2}{3}$ of the height necessary for producing the velocity when only the central hole was open. When various holes were opened at different distances from the centre, the height of the water in DH continually diminished as the hole was nearer the border. At a certain distance from the border the water at E was level with the surrounding water, so that no pressure was exerted on that hole. But the most unexpected and remarkable circumstance was, that, in great velocities, the holes at the very border, and even to a small distance from it, not only sustained no pressure, but even gave out water; for the water in the tube was lower than the surrounding water. Mr Buat calls this a *non-pression*. In a case in which the velocity of the stream was three feet, and the pressure on the central hole caused the water in the vertical tube to stand 33 lines or $\frac{33}{12}$ of an inch above the level of the surrounding smooth water, the action on a hole at the lower corner of the square caused it to stand 12 lines lower than the surrounding water. Now the velocity of the stream in this experiment was 36 inches *per* second. This requires $21\frac{1}{2}$ lines for its productive fall; whereas the pressure on the central hole was 33. This approaches to the pressure on a surface which deflects it wholly. The intermediate holes gave every variation of pressure, and the diminution was more rapid as the holes were nearer the edge; but the law of diminution could not be observed.

70 Remarkable circumstance.

71 Not inconsistent with the principles of hydrostatics or hydraulics.

This is quite a new and most unexpected circumstance in the action of fluids on solid bodies, and renders the subject more intricate than ever; yet it is by no means inconsistent with the genuine principles of hydrostatics or hydraulics. In as far as Mr Buat's proposition concerning the pressure of moving fluids is true, it is very reasonable to say, that when the lateral velocity with which the fluid tends to escape exceeds the velocity of percussion, the height necessary for producing this velocity must exceed that which would produce the other, and a non-pression must be observed. And if we consider the forms of the lateral filaments near the edge of the body, we see that the concavity of the curve is turned towards the body, and that the centrifugal forces tend to diminish their pressure on the body. If the middle alone were struck with a considerable velocity, the water might even rebound, as is frequently observed. This *actual* rebounding is here prevented by the surrounding water, which is moving with the same velocity: but the

Resistance. the pressure may be almost annihilated by the *tendency* to rebound of the inner filaments.

Part (and perhaps a considerable part) of this apparent non-pression is undoubtedly produced by the tenacity of the water, which licks off with it the water lying in the hole. But, at any rate, this is an important fact, and gives great value to these experiments. It gives a key to many curious phenomena in the resistance of fluids; and the theory of Mr Buat deserves a very serious consideration. It is all contained in the two following propositions.

72 Substance of Buat's theory.

1. "*If, by any cause whatever, a column of fluid, whether making part of an indefinite fluid, or contained in solid canals, comes to move with a given velocity, the pressure which it exerted laterally before its motion, either on the adjoining fluid or on the sides of the canal, is diminished by the weight of a column having the height necessary for communicating the velocity of the motion.*

2. "*The pressure on the centre of a plane surface perpendicular to the stream, and wholly immersed in it, is $\frac{3}{4}$ of the weight of a column having the height necessary for communicating the velocity. For 33 is $\frac{3}{4}$ of $21\frac{1}{2}$.*"

73 Experiments by which it is confirmed.

He attempted to ascertain the medium pressure on the whole surface, by opening 625 holes dispersed all over it. With the same velocity of current, he found the height in the tube to be 29 lines, or $7\frac{1}{2}$ more than the height necessary for producing the velocity. But he justly concluded this to be too great a measure, because the holes were $\frac{1}{4}$ of an inch from the edge: had there been holes at the very edge, they would have sustained a non-pression, which would have diminished the height in the tube very considerably. He exposed to the same stream a conical funnel, which raised the water to 34 lines. But this could not be considered as a measure of the pressure on a plane solid surface; for the central water was undoubtedly scooped out, as it were, and the filaments much more deflected than they would have been by a plane surface. Perhaps something of this happened even in every small hole in the former experiments. And this suggests some doubt as to the accuracy of the measurement of the pressure and of the velocity of a current by Mr Pitot's tube. It surely renders some corrections absolutely necessary. It is a fact, that when exposed to a vein of fluid coming through a short passage, the water in the tube stands on a level with that in the reservoir. Now we know that the velocity of this stream *does not* exceed what would be produced by a fall equal to $\frac{82}{100}$ of the head of water in the reservoir. Mr Buat made many valuable observations and improvements on this most useful instrument, which will be taken notice of in the articles RIVERS and *WATER-Works*.

Mr Buat, by a scrupulous attention to all the circumstances, concludes, that the medium of pressure on the whole surface is equal to $\frac{25,5}{21,5}$ of the weight of a column, having the surface for its base, and the productive fall for its height. But we think that there is an uncertainty in this conclusion; because the height of the water in the vertical tube was undoubtedly augmented by an hydrostatical pressure arising from the accumulation of water above the body which was exposed to the stream.

Since the pressures are as the squares of the velocities, or as the heights h which produce the velocities, we may express this pressure by the symbol $\frac{25,5}{21,5}h$, or $1,186\,h$, or $m\,h$, the value of m being 1,186. This exceeds considerably the result of the experiments of the French academy. In these it does not appear that m sensibly exceeds unity. Note, that in these experiments the body was moved through still water; here it is exposed to a stream. These are generally supposed to be equivalent, on the authority of the third law of motion, which makes every action depend on the relative motions. We shall by and by see some causes of difference.

74 The act on the hinder part of a body of ship equally important with that on the fore-part.

The writers on this subject seem to think their task completed when they have considered the action of the fluid on the anterior part of the body, or that part of it which is before the broadest section, and have paid little or no attention to the hinder part. Yet those who are most interested in the subject, the naval architects, seem convinced that it is of no less importance to attend to the form of the hinder part of a ship. And the universal practice of all nations has been to make the hinder part more acute than the fore-part. This has undoubtedly been deduced from experience; for it is in direct opposition to any notions which a person would naturally form on this subject. Mr Buat therefore thought it very necessary to examine the action of the water on the hinder part of a body by the same method. And, previous to this examination, in order to acquire some scientific notions of the subject, he made the following very curious and instructive experiment.

75 Experiment on this subject by Buat. Plate cccxxx.

Two little conical pipes AB (fig. 22.) were inserted into the upright side of a prismatic vessel. They were an inch long, and their diameters at the inner and outer ends were five and four lines. A was 57 lines under the surface, and B was 73. A glass syphon was made of the shape represented in the figure, and its internal diameter was $1\frac{1}{4}$ lines. It was placed with its mouth in the axis, and even with the base of the conical pipe. The pipes being shut, the vessel was filled with water, and it was made to stand on a level in the two legs of the syphon, the upper part being full of air. When this syphon was applied to the pipe A, and the water running freely, it rose 32 lines in the short leg, and sunk as much in the other. When it was applied to the pipe B, the water rose 41 lines in the one leg of the syphon, and sunk as much in the other.

76 And his reasoning upon it.

He reasons in this manner from the experiment. The ring comprehended between the end of the syphon and the sides of the conical tube being the narrowest part of the orifice, the water issued with the velocity corresponding to the height of the water in the vessel above the orifice, diminished for the contraction. If therefore the cylinder of water immediately before the mouth of the syphon issued with the same velocity, the tube would be emptied through a height equal to this HEAD OF WATER *(charge)*. If, on the contrary, this cylinder of water, immediately before the mouth of the syphon, were stagnant, the water in it would exert its full pressure on the mouth of the syphon, and the water in the syphon would be level with the water in the vessel. Between these extremes we must find the real state of the case, and we must measure the force of non-pressure by the rise of the water in the syphon.

We see that in both experiments it bears an accurate pro-

Resistance. proportion to the depth under the surface. For 57 : 73 = 32 : 41 very nearly. He therefore estimates the non-pressure to be $\frac{56}{55}$ of the height of the water above the orifice.

77 Strangely accurate.

We are disposed to think that the ingenious author has not reasoned accurately from the experiment. In the first place, the force indicated by the experiment, whatever be its origin, is certainly double of what he supposes; for it must be measured by the sum of the rise of the water in one leg, and its depression in the other, the weight of the air in the bend of the syphon being neglected. It is precisely analogous to the force acting on the water oscillating in a syphon, which is acknowledged to be the sum of the elevation and depression. The force indicated by the experiment therefore is $\frac{112}{100}$ of the height of the water above the orifice. The force exhibited in this experiment bears a still greater proportion to the productive height; for it is certain that the water *did not* issue with the velocity acquired by the fall from the surface, and probably did not exceed $\frac{2}{3}$ of it. The effect of contraction must have been considerable and uncertain. The velocity should have been measured both by the amplitude of the jet and by the quantity of water discharged. In the next place, we apprehend that much of the effect is produced by the tenacity of the water, which drags along with it the water which would have slowly issued from the syphon, had the other end not dipped into the water of the vessel. We know, that if the horizontal part of the syphon had been continued far enough, and if no retardation were occasioned by friction, the column of water in the upright leg would have accelerated like any heavy body; and when the last of it had arrived at the bottom of that leg, the whole in the horizontal part would be moving with the velocity acquired by falling from the surface. The water of the vessel which issues through the surrounding ring very quickly acquires a much greater velocity than what the water descending in the syphon would acquire in the same time, and it drags this last water along with it both by tenacity and friction, and it drags it out till its action is opposed by the want of equilibrium produced in the syphon, by the elevation in the one leg and the depression in the other. We imagine that little can be concluded from the experiment with respect to the real non-pressure. Nay, if the sides of the syphon be supposed infinitely thin, so that there would be no curvature of the filaments of the surrounding water at the mouth of the syphon, we do not very distinctly see any source of non-pressure: For we are not altogether satisfied with the proof which Mr Buat offers for this measure of the pressure of a stream of fluid gliding along a surface, *and obstructed by friction or any other cause*. We imagine that the passing water in the present experiment would be a little retarded by accelerating continually the water descending in the syphon, and renewed a-top, supposing the upper end open; because this water would not of itself acquire more than half this velocity. It however drags it out, till it not only resists with a force equal to the weight of the whole vertical column, but even exceeds it by $\frac{12}{100}$. This it is able to do, because the whole pressure by which the water issues from an orifice has been shown (by Daniel Bernoulli) to be equal to twice this weight. We therefore consider this beautiful experiment as chiefly valuable, by giving us a measure of the tenacity of the water; and we wish that it were repeated in a variety of depths, in order to discover what relation the force exerted bears to the depth. It would seem that the tenacity, being a certain determinate thing, the proportion of 100 to 112 would not be constant; and that the observed ratio would be made up of two parts, one of them constant, and the other proportional to the depth under the surface.

But still this experiment is intimately connected with the matter in hand; and this apparent non-pressure on the hinder part of a body exposed to a stream, from whatever causes it proceeds, does operate in the action of water on this hinder part, and must be taken into the account.

78 Further discussions of Mr Buat.

We must therefore follow the Chevalier de Buat in his discussions on this subject. A prismatic body, having its prow and poop equal and parallel surfaces, and plunged horizontally into a fluid, will require a force to keep it firm in the direction of its axis precisely equal to the difference between the real pressures exerted on its prow and poop. If the fluid is at rest, this difference will be nothing, because the opposite dead pressures of the fluid will be equal: but in a stream, there is superadded to the dead pressure on the prow the active pressure arising from the deflections of the filaments of this fluid.

If the dead pressure on the poop remained in its full intensity by the perfect stagnation of the water behind it, the whole sensible pressure on the body would be the active pressure only on the prow, represented by mh. If, on the other hand, we could suppose that the water behind the body moved continually away from it (being renewed laterally) with the velocity of the stream, the dead pressure would be entirely removed from its poop, and the whole sensible pressure, or what must be opposed by some external force, would be $mh + h$. Neither of these can happen; and the real state of the case must be between these extremes.

79 Experiments.

The following experiments were tried: The perforated box with its vertical tube was exposed to the stream, the brass plate being turned down the stream. The velocity was again 36 inches per second.

The central hole A alone being opened, gave a non-pressure of - -	13 lines.
A hole B, $\frac{5}{6}$ of an inch from the edge, gave - -	15
A hole C, near the surface -	15,7
A hole D, at the lower angle -	15,3

Here it appears that there is a very considerable non-pressure, increasing from the centre to the border. This increase undoubtedly proceeds from the greater lateral velocity with which the water is gliding in from the sides. The water behind was by no means stagnant, although moving off with a much smaller velocity than that of the passing stream, and it was visibly removed from the sides, and gradually licked away at its further extremity.

Another box, having a great number of holes, all open, indicated a medium of non-pressure equal to $13\frac{1}{3}$ lines.

Another of larger dimensions, but having fewer holes, indicated a non-pressure of $12\frac{1}{6}$.

But the most remarkable, and the most important phenomena, were the following:

The first box was fixed to the side of another box, so

Resistance.

[illegible] that, when all was made smooth, it took a perfect cube, of which the perforated board made the poop.

The apparatus being now exposed to the stream, with the perforated plate looking down the stream,

The hole A indicated a non-pressure	-	= [illegible],2
B	- - -	8
C	- - -	6

Here was a great diminution of the non-pressure produced by the distance between the prow and the poop.

The box was then fitted in the same manner, so as to make the poop of a box twice that long. In this situation the non-pressures were as follow:

Hole A	- - -	1,5
B	- - -	3,2

The non-pressures were still farther diminished by this increase of length.

The box was then exposed with all the holes open, in three different situations:

1st, Single, giving a non-pressure	-	13,1
2d, Making the poop of a cube	-	5,3
3d, Making the poop of a box three feet long		3,0

Another larger box:

1st, Single	- - -	12,2
2d, Poop of a cube	- -	5,
3d, Poop of the long box	- -	3,2

80 Great utility of these in ship-building.

These are most valuable experiments. They plainly show how important it is to consider the action on the hinder part of the body. For the whole impulse or resistance, which must be withstood or overcome by the external force, is the sum of the active pressure on the fore-part, and of the non-pressure on the hinder-part; and they show that this does not depend solely on the form of the prow and poop, but also, and perhaps chiefly, on the length of the body. We see that the non-pressure on the hinder-part was prodigiously diminished (reduced to one-fourth) by making the length of the body triple of the breadth. And hence it appears, that merely lengthening a ship, without making any change in the form either of her prow or her poop, will greatly diminish the resistance to her motion through the water; and this increase of length may be made by continuing the form of the midship frame in several timbers along the keel, by which the capacity of the ship, and her power of carrying sail, will be greatly increased, and her other qualities improved, while her speed is augmented.

81 Physical cause of it explained.

It is surely of importance to consider a little the physical cause of this change. The motions are extremely complicated, and we must be contented if we can but perceive a few leading circumstances.

The water is turned aside by the anterior part of the body, and the velocity of the filaments is increased, and they acquire a divergent motion, by which they also push aside the surrounding water. On each side of the body, therefore, they are moving in a divergent direction, and with an increased velocity. But as they are on all sides pressed by the fluid without them, their motions gradually approach to parallelism, and their velocities to an equality with the stream. The progressive velocity, or that in the direction of the stream, is checked, at least at first. But since we observe the filaments constipated round the body, and that they are not deflected at right angles to their former direction, it is plain that the real velocity of a filament in its oblique path is augmented. We always observe, that a stone lying in the sand, and exposed to the wash of the sea, is laid bare at the bottom, and the sand is generally washed away to some distance all round. This is owing to the increased velocity of the water which comes into contact with the stone. It takes up more sand than it can keep floating, and it deposits it at a little distance all around, forming a little bank, which surrounds the stone at a small distance. When the filaments of water have passed the body, they are pressed by the ambient fluid into the place which it has quitted, and they glide round its stern, and fill up the space behind. The more divergent and the more rapid they are, when about to fall in behind, the more of the circumambient pressure must be employed to turn them into the trough behind the body, and less of it will remain to press them to the body itself. The extreme of this must obtain when the stream is obstructed by a thin plane only. But when there is some distance between the prow and the poop, the divergency of the filaments which had been turned aside by the prow, is diminished by the time that they have come abreast of the stern, and should turn in behind it. They are therefore more readily made to converge behind the body, and a more considerable part of the surrounding pressure remains unexpended, and therefore presses the water against the stern; and it is evident that this advantage must be so much the greater as the body is longer. But the advantage will soon be susceptible of no very considerable increase: for the lateral and divergent, and accelerated filaments, will soon become so nearly parallel and equally rapid with the rest of the stream, that a great increase of length will not make any considerable change in these particulars; and it must be accompanied with an increase of friction.

These are very obvious reflections. And if we attend minutely to the way in which the almost stagnant fluid behind the body is expended and renewed, we shall see all these effects confirmed and augmented. But as we cannot say any thing on this subject that is precise, or that can be made the subject of computation, it is needless to enter into a more minute discussion. The diminution of the non-pressure towards the centre most probably arises from the smaller force which is necessary to be expended in the inflection of the lateral filaments, already inflected in some degree, and having their velocity diminished. But it is a subject highly deserving the attention of the mathematicians; and we presume to invite them to the study of the motions of these lateral filaments, passing the body, and pressed into its wake by forces which are susceptible of no difficult investigation. It seems highly probable, that if a prismatic box, with a square stern, were fitted with an addition precisely shaped like the water which would (abstracting tenacity and friction) have been stagnant behind it, the quantity of non-pression would be the smallest possible. The mathematician would surely discover circumstances which would furnish some maxims of construction for the hinder part as well as for the prow. And as his speculations on this head have not been wholly fruitless, we may expect advantages from his attention to this part, so much neglected.

82 Buat's deductions from experiments.

In the mean time, let us attend to the deductions which Mr de Buat has made from his few experiments.

stance. When the velocity is three feet per ſecond, requiring the productive height 21,5 lines, the heights correſponding to the non-preſſure on the poop of a thin plane is 14,41 lines (taking in ſeveral circumſtances of judicious correction, which we have not mentioned), that of a foot cube is 5,83, and that of a box of triple length is 3 31.

Let q expreſs the variable ratio of theſe to the height producing the velocity, ſo that $q\,h$ may expreſs the non-preſſure in every caſe; we have,

For a thin plane - -	$q = 0,67$
a cube - - -	0,271
a box = 3 cubes - -	0,153

It is evident that the value of q has a dependence on the proportion of the length, and the tranſverſe ſection of the body. A ſeries of experiments on priſmatic bodies ſhowed Mr de Buat that the deviation of the filaments was ſimilar in ſimilar bodies, and that this obtained even in diſſimilar priſms, when the lengths were as the ſquare-roots of the tranſverſe ſections. Although therefore the experiments were not ſufficiently numerous for deducing the preciſe law, it ſeemed not impoſſible to derive from them a very uſeful approximation. By a dexterous compariſon he found, that if l expreſſes the length of the priſm, and s the area of the tranſverſe ſection, and L expreſſes the common logarithm of the quantity to which it is prefixed, we ſhall expreſs the non-preſſure pretty accurately by the formula $\frac{1}{q} = \mathrm{L}\left(1,42\,\frac{l}{\sqrt{s}}\right)$.

Hence ariſes an important remark, that when the height correſponding to the non-preſſion is greater than $\sqrt{s}$, and the body is little immerſed in the fluid, there will be a void behind it. Thus a ſurface of a ſquare inch, juſt immerſed in a current of three feet per ſecond, will have a void behind it. A foot ſquare will be in a ſimilar condition when the velocity is 12 feet.

We muſt be careful to diſtinguiſh this non-preſſure from the other cauſes of reſiſtance, which are always neceſſarily combined with it. It is ſuperadditive to the active impreſſion on the prow, to the ſtatical preſſure of the accumulation a-head of the body, the ſtatical preſſure ariſing from the depreſſion behind it, the effects of friction, and the effects of tenacity. It is indeed next to impoſſible to eſtimate them ſeparately, and many of them are actually combined in the meaſures now given. Nothing can determine the pure non-preſſures till we can aſcertain the motions of the filaments.

83 controts a xiom uniſally opted, Mr de Buat here takes occaſion to controvert the univerſally adopted maxim, that the preſſure occaſioned by a ſtream of fluid on a fixed body is the ſame with that on a body moving with equal velocity in a quieſcent fluid. He repeated all theſe experiments with the perforated box in ſtill water. The general diſtinction was, that both the preſſures and the non-preſſure in this caſe was leſs, and that the odds was chiefly to be obſerved near the edges of the ſurface. The general factor of the preſſure of a ſtream on the anterior ſurface was $m = 1,186$; but that on a body moving through a ſtill fluid is only $m = 1$. He obſerved no non-preſſure even at the very edge of the prow, but even a ſenſible preſſure. The preſſure, therefore, or reſiſtance, is more equably diffuſed over the ſurface of the prow than the impulſe is.—He alſo found that the reſiſtances diminiſhed in a leſs ratio than the ſquares of the velocities, eſpecially in ſmall velocities.

The non-preſſures increaſed in a greater ratio than the ſquares of the velocities. The ratio of the velocities to a ſmall velocity of $2\frac{1}{5}$ inches *per* ſecond increaſed geometrically, the value of q increaſed arithmetically; and we may determine q for any velocity V by this proportion

$$\mathrm{L}\,\frac{55}{2,2} : \mathrm{L}\,\frac{V}{22} = 0,5 : q, \text{ and } q = \frac{\mathrm{L}\,\frac{V}{2,2}}{2,8}.$$

That is, let the common logarithm of the velocity, divided by $2\frac{1}{5}$, be conſidered as a common number; divide this common number by $2\frac{8}{10}$, the quotient is q, which muſt be multiplied by the productive height. The product is the preſſure.

When Pitot's tube was expoſed to the ſtream, we had $m = 1$; but when it is carried through ſtill water, m is $= 1,22$. When it was turned from the ſtream, we had $q = 0,157$; but when carried through ſtill water, q is $= 0,138$. A remarkable experiment.

84 And ſupports his opinion by a remarkable experiment. When the tube was moved laterally through the water, ſo that the motion was in the direction of the plane of its mouth, the non-preſſure was $= 1$. This is one of his chief arguments for his theory of non-preſſion. He does not give the detail of the experiment, and only inſerts the reſult in his table.

As a body expoſed to a ſtream deflects the fluid, heaps it up, and increaſes its velocity; ſo a body moved through a ſtill fluid turns it aſide, cauſes it to ſwell up before it, and gives it a real motion alongſide of it in the oppoſite direction. And as the body expoſed to a ſtream has a quantity of fluid almoſt ſtagnant both before and behind; ſo a body moved through a ſtill fluid carries before it and drags after it a quantity of fluid, which accompanies it with nearly an equal velocity. This addition to the quantity of matter in motion muſt make a diminution of its velocity; and this forms a very conſiderable part of the obſerved reſiſtance.

85 The objection not well founded. We cannot, however, help remarking that it would require very diſtinct and ſtrong proof indeed to overturn the common opinion, which is founded on our moſt certain and ſimple conceptions of motion, and on a law of nature to which we have never obſerved an exception. Mr de Buat's experiments, tho' moſt judiciouſly contrived, and executed with ſcrupulous care, are by no means of this kind. They were, of abſolute neceſſity, very complicated; and many circumſtances, impoſſible to avoid or to appreciate, rendered the obſervation, or at leaſt the compariſon, of the velocities, very uncertain.

86 Remarks and experiments on the motion of bodies in running or ſtill water. We can ſee but two circumſtances which do not admit of an eaſy or immediate compariſon in the two ſtates of the problem. When a body is expoſed to a ſtream *in our experiments*, in order to have an impulſe made on it, there is a force tending to move the body backwards, independent of the real impulſe or preſſure occaſioned by the deflection of the ſtream. We cannot have a ſtream except in conſequence of a ſloping ſurface. Suppoſe a body floating on this ſtream. It will not only fall down *along with the ſtream*, but it will fall *down the ſtream*, and will therefore go faſter along the canal than the ſtream does: for it is floating on an inclined plane; and if we examine it by the laws of hydroſtatics, we ſhall find, that beſides its own tendency to *ſlide* down this inclined plane, there is an odds of hydroſtatical preſſure, which *puſhes* it down this plane. It will therefore go along the canal faſter than the ſtream. For this acceleration depends on the difference of preſſure at the two ends, and will be more remarkable

Resistance. markable as the body is larger, and especially as it is longer. This may be distinctly observed. All floating bodies go into the stream of the river, because there they find the smallest obstruction to the acquisition of this motion along the inclined plane; and when a number of bodies are thus floating down the stream, the largest and longest outstrip the rest. A log of wood floating down in this manner may be observed to make its way very fast among the chips and saw-dust which float alongside of it.

Now when, in the course of our experiments, a body is supported against the action of a stream, and the impulse is measured by the force employed to support it, it is plain that part of this force is employed to act against that tendency which the body has to outstrip the stream. This does not appear in our experiment, when we move a body with the velocity of this stream through still water having a horizontal surface.

The other distinguishing circumstance is, that the retardations of a stream arising from friction are found to be nearly as the velocities. When, therefore, a stream moving in a limited canal is checked by a body put in its way, the diminution of velocity occasioned by the friction of the stream having already produced its effect, the impulse is not affected by it; but when the body puts the still water in motion, the friction of the bottom produces some effect, by retarding the recess of the water. This, however, must be next to nothing.

The chief difference will arise from its being almost impossible to make an exact comparison of the velocities: for when a body is moved against the stream, the relative velocity is the same in all the filaments. But when we expose a body to a stream, the velocity of the different filaments is not the same; because it decreases from the middle of the stream to the sides.

87 Mr Buat's experiments on resistance,

Mr Buat found the total sensible resistance of a plate 12 inches square, and measured, not by the height of water in the tube of the perforated box, but by weights acting on the arm of a balance, having its centre 15 inches under the surface of a stream moving three feet per second, to be 19,46 pounds; that of a cube of the same dimensions was 15,22; and that of a prism three feet long was 13,87; that of a prism six feet long was 14,27. The three first agree extremely well with the determination of m and q, by the experiments with the perforated box. The total resistance of the last was undoubtedly much increased by friction, and by the retrograde force of so long a prism floating in an inclined stream. This last by computation is 0,223 pounds; this added to $h\ (m+q)$, which is 13,59, gives 13,81, leaving 0,46 for the effect of friction.

If the same resistances be computed on the supposition that the body moves in still water, in which case we have $m=1$, and q for a thin plate $=0,433$; and if q be computed for the lengths of the other two bodies by the formula $\frac{1}{q} = \mathrm{L}\ 1,42 + \frac{l}{\sqrt{s}}$; we shall get for the resistances 14,94; 12,22; and 11,49.

88 And of the quantity of water adhering to a body moving in still water, &c.

Hence Mr Buat concludes, that the resistances in these two states are nearly in the ratio of 13 to 10. This, he thinks, will account for the difference observed in the experiments of different authors.

Mr Buat next endeavours to ascertain the quantity of water which is made to adhere in some degree to a body which is carried along thro' still water, or which remains nearly stagnant in the midst of a stream. He takes the sum of the motions in the direction of the stream, viz. the sum of the actual motions of all those particles which have lost part of their motion, and he divides this sum by the general velocity of the stream. The quotient is equivalent to a certain quantity of water perfectly stagnant round the body. Without being able to determine this with precision, he observes, that it augments as the resistance diminishes; for in the case of a longer body, the filaments are observed to converge to a greater distance behind the body. The stagnant mass a-head of the body is more constant; for the deflection and resistance at the prow are observed not to be affected by the length of the body. Mr Buat, by a very nice analysis of many circumstances, comes to this conclusion, that the whole quantity of fluid, which in this manner accompanies the solid body, remains the same whatever is the velocity. He might have deduced it at once, from the consideration that the curves described by the filaments are the same in all velocities.

He then relates a number of experiments made to ascertain the absolute quantity thus made to accompany the body. These were made by causing pendulums to oscillate in fluids. Newton had determined the resistances to such oscillation by the diminution of the arches of vibration. Mr Buat determines the quantity of dragged fluid by the increase of their duration; for this stagnation or dragging is in fact adding a quantity of matter to be moved, without any addition to the moving force. It was ingeniously observed by Newton, that the time of oscillation was not sensibly affected by the resistance of the fluid: a compensation, almost complete, being made by the diminution of the arches of vibration; and experiment confirmed this. If, therefore, a great augmentation of the time of vibration be observed, it must be ascribed to the additional quantity of matter which is thus dragged into motion, and it may be employed for its measurement. Thus, let a be the length of a pendulum swinging seconds in vacuo, and l the length of a second's pendulum swinging in a fluid. Let p be the weight of the body in the fluid, and P the weight of the fluid displaced by it; $\mathrm{P}+p$ will express its weight in vacuo, and $\frac{\mathrm{P}+p}{p}$ will be the ratio of these weights. We shall therefore have $\frac{\mathrm{P}+p}{p} = \frac{a}{l}$ and $l = \frac{ap}{\mathrm{P}+p}$.

Let $n\,\mathrm{P}$ express the sum of the fluid displaced, and the fluid dragged along, n being a number greater than unity, to be determined by experiment. The mass in motion is no longer $\mathrm{P}+p$, but $\mathrm{P}+n\,\mathrm{P}$, while its weight in the fluid is still p. Therefore we must have

$$l = \frac{ap}{n\,\mathrm{P}+p} = \frac{a}{\frac{n\,\mathrm{P}}{p}+1}, \text{ and } n = \frac{p}{\mathrm{P}}\left(\frac{a}{l}-1\right).$$

A prodigious number of experiments made by Mr Buat on spheres vibrating in water gave values of n, which were very constant, namely, from 1,5 to 1,7; and by considering the circumstances which accompanied the variations of n (which he found to arise chiefly from the curvature of the path described by the ball),

ball), he states the mean value of the number n at 1,583. So that a sphere in motion drags along with it about $\frac{1}{10}$ of its own bulk of fluid with a velocity equal to its own.

He made similar experiments with prisms, pyramids, and other bodies, and found a complete confirmation of his assertion, that prisms of equal lengths and sections, though dissimilar, dragged equal quantities of fluid; that similar prisms and prisms not similar, but whose length were as the square-root of their sections, dragged quantities proportional to their bulks.

He found a general value of n for prismatic bodies, which alone may be considered as a valuable truth; namely, that $n = 0,705 \frac{\sqrt{s}}{l} + 1,13$.

From all these circumstances, we see an intimate connection between the pressures, non-pressures, and the fluid dragged along with the body. Indeed this is immediately deducible from the first principles; for what Mr Buat calls the *dragged fluid* is in fact a certain portion of the whole change of motion produced in the direction of the bodies motion.

It was found, that with respect to thin planes, spheres, and pyramidal bodies of equal bases, the resistances were inversely as the quantities of fluid dragged along.

The intelligent reader will readily observe, that these views of the Chevalier Buat are not so much discoveries of new principles as they are classifications of consequences, which may all be deduced from the general principles employed by D'Alembert and other mathematicians. But they greatly assist us in forming notions of different parts of the procedure of nature in the mutual action of fluids and solids on each other. This must be very acceptable in a subject which it is by no means probable that we shall be able to investigate with mathematical precision. We have given an account of these last observations, that we may omit nothing of consequence that has been written on the subject; and we take this opportunity of recommending the *Hydraulique* of Mr Buat as a most ingenious work, containing more original, ingenious, and practically useful thoughts, than all the performances we have met with. His doctrine of *the principle of uniform motion of fluids in pipes and open canals*, will be of immense service to all engineers, and enable them to determine with sufficient precision the most important questions in their profession; questions which at present they are hardly able to guess at. See RIVERS and *Water Works*.

The only circumstance which we have not noticed in detail, is the change of resistance produced by the void, or tendency to a void, which obtains behind the body; and we omitted a particular discussion, merely because we could say nothing sufficiently precise on the subject. Persons not accustomed to the discussions in the physico-mathematical sciences, are apt to entertain doubts or false notions connected with this circumstance, which we shall attempt to remove; and with this we shall conclude this long and unsatisfactory dissertation.

If a fluid were perfectly incompressible, and were contained in a vessel incapable of extension, it is impossible that any void could be formed behind the body; and in this case it is not very easy to see how motion could be performed in it. A sphere moved in such a medium could not advance one inch distance, unless some particles of the fluid, in taking up the space left by it, moved with a velocity next to infinite. Some degree of compressibility, however small, seems necessary. If this be insensible, it may be rigidly demonstrated, that an external force of compression will make no *sensible* change in the internal motions, or in the resistances. This indeed is not obvious, but is an immediate consequence of the *quaquaversum* pressure of fluids. As much as the pressure is augmented by the external compressions on one side of a body, so much is it augmented on the other side; and the same must be said of every particle. Nothing more is necessary for securing the same motions by the same partial and internal forces; and this is fully verified by experiment. Water remains equally fluid under any compressions. In some of Sir Isaac Newton's experiments balls of four inches diameter were made so light as to preponderate in water only three grains. These balls descended in the same manner as they would have descended in a fluid where the resistance was equal in every part; yet, when they were near the bottom of a vessel nine feet deep, the compression round them was at last 2400 times the moving force; whereas, when near the top of the vessel, it was not above 50 or 60 times.

But in a fluid sensibly compressible, or which is not confined, a void may be left behind the body. Its motion may be so swift that the surrounding pressure may not suffice for filling up the deserted space; and, in this case, a statical pressure will be added to the resistance. This may be the case in a vessel or pond of water having an open surface exposed to the finite or limited pressure of the atmosphere. The question now is, whether the resistance will be increased by an increase of external pressure? Supposing a sphere moving near the surface of water, and another moving equally fast at four times the depth. If the motion be so swift that a void is formed in both cases, there is no doubt but that the sphere which moves at the greatest depth is most resisted by the pressure of the water. If there is no void in either case, then, because the quadruple depth would cause the water to flow in with only a double velocity, it would seem that the resistance would be greater; and indeed the water flowing in laterally with a double velocity produces a quadruple non-pressure.—But, on the other hand, the pressure at a small depth may be insufficient for preventing a void, while that below effectually prevents it; and this was observed in some experiments of Chevalier de Borda. The effect, therefore, of greater immersion, or of greater compression, in an elastic fluid, does not follow a precise ratio of the pressure, but depends partly on absolute quantities. It cannot, therefore, be stated by any very simple formula what increase or diminution of resistance will result from a greater depth; and it is chiefly on this account that experiments made with models of ships and mills are not conclusive with respect to the performance of a large machine of the same proportions, without corrections, sometimes pretty intricate. We assert, however, with great confidence, that this is of all methods the most exact, and infinitely more certain than any thing that can be deduced from the most elaborate calculation from theory. If the resistances at all depths be equal, the proportionality of the total resistance to the body is exact, and perfectly conformable to observation. It is only in great velocities where the depth has any material influence, and the influence is not near so considerable as we should, at first sight, suppose; for, in eliminating the effect of immersion, which has a relation

Resistance

to the difference of pressure, we must always take in the pressure of the atmosphere; and thus the pressure at 33 feet deep is not 33 times the pressure at one foot deep, but only double, or twice as great. The atmospheric pressure is omitted only when the resisted plane is at the very surface. D'Ulloa, in his *Examino Maritimo*, has introduced an equation expressing this relation; but, except with very limited conditions, it will mislead us prodigiously. To give a general notion of its foundation, let AB (fig. 23.) be the section of a plane moving through a fluid in the direction CD, with a known velocity. The fluid will be heaped up before it above its natural level CD, because the water will not be pushed before it like a solid body, but will be pushed aside. And it cannot acquire a lateral motion any other way than by an accumulation, which will diffuse itself in all directions by the law of undulatory motion. The water will also be left lower behind the plane, because time *must* elapse before the pressure of the water behind can make it fill the space. We may acquire some notion of the extent of both the accumulation and depression in this way. There is a certain depth CF ($= \frac{v^2}{2p}$, where v is the velocity, and p the accelerating power of gravity) under the surface, such that water would flow through a hole at F with the velocity of the plane's motion. Draw a horizontal line FG. The water will certainly touch the plane in G, and we may suppose that it touches it no higher up. Therefore there will be a hollow, such as CGE. The elevation HE will be regulated by considerations nearly similar. ED must be equal to the velocity of the plane, and HE must be its productive height. Thus, if the velocity of the plane be one foot *per* second, HE and EG will be $\frac{1}{8}$ of an inch. This is sufficient (though not exact) for giving us a notion of the thing. We see that from this must arise a pressure in the direction DC, viz. the pressure of the whole column HG.

Something of the same kind will happen although the plane AB be wholly immerged, and this even to some depth. We see such elevations in a swift running stream, where there are large stones at the bottom.—This occasions an excess of pressure in the direction opposite to the plane's motion; and we see that there must, in every case, be a relation between the velocity and this excess of pressure. This D'Ulloa expresses by an equation. But it is very exceptionable, not taking properly into the account the comparative facility with which the water can heap up and diffuse itself. It must always heap up till it acquires a sufficient head of water to produce a lateral and progressive diffusion sufficient for the purpose. It is evident, that a smaller elevation will suffice when the body is more immersed, because the check or impulse given by the body below is propagated, not vertically only, but in every direction; and therefore the elevation is not confined to that part of the surface which is immediately above the moving body, but extends so much farther laterally as the centre of agitation is deeper: Thus, the elevation necessary for the passage of the body is so much smaller; and it is the *height* only of this accumulation or wave which determines the backward pressure on the body. D'Ulloa's equation may happen to quadrate with two experiments at different depths, without being nearly just; for *any* two points may be in a curve, without exhibiting its equation. Three points will do it with some approach to precision; but four, at least, are necessary for giving any notion of its nature. D'Ulloa has only given two experiments, which we mentioned in another place.

We may here observe, that it is this circumstance which immediately produces the great resistance to the motion of a body through a fluid in a narrow canal.—The fluid cannot pass the body, unless the area of the section be sufficiently extensive. A narrow canal prevents the extension sidewise. The water must therefore heap up, till the section and velocity of diffusion are sufficiently enlarged, and thus a great backward pressure is produced. (See the second series of Experiments by the French Academicians; see also Franklin's Essays.) It is important, and will be considered in another place.

Thus have we attempted to give our readers some account of one of the most interesting problems in the whole of mechanical philosophy. We are sorry that so little advantage can be derived from the united efforts of the first mathematicians of Europe, and that there is so little hope of greatly improving our scientific knowledge of the subject. What we have delivered will, however, enable our readers to peruse the writings of those who have applied the theories to practical purposes. Such, for instance, are the treatises of John Bernoulli, of Bouguer, and of Euler, on the construction and working of ships, and the occasional dissertations of different authors on water-mills. In this last application the ordinary theory is not without its value, for the impulses are nearly perpendicular; in which case they do not materially deviate from the duplicate proportion of the sine of incidence. But even here this theory, applied as it commonly is, misleads us exceedingly. The impulse on one float may be accurately enough stated by it; but the authors have not been attentive to the motion of the water after it has made its impulse; and the impulse on the next float is stated the same as if the parallel filaments of water, which were not stopped by the preceding float, did impinge on the opposite part of the second, in the same manner, and with the same obliquity and energy, as if it were detached from the rest. But this does not in the least resemble the real process of nature.

91 Impulse of water on water mills.

Suppose the floats B, C, D, H (fig. 24.) of a wheel immersed in a stream whose surface moves in the direction AK, and that this surface meets the float B in E. The part BE alone is supposed to be impelled; whereas the water, checked by the float, heaps up on it to *e*.—Then drawing the horizontal line BF, the part CF of the next float is supposed to be all that is impelled by the parallel filaments of the stream; whereas the water bends round the lower edge of the float B by the surrounding pressure, and rises on the float *c* all the way to *f*. In like manner, the float D, instead of receiving an impulse on the very small portion DG, is impelled all the way from D to *g*, not much below the surface of the stream. The surfaces impelled at once, therefore, greatly exceed what this slovenly application of the theory supposes, and the whole impulse is much greater; but this is a fault in the application, and not in the theory. It will not be a very difficult thing to acquire a knowledge of the motion of the water which has passed the preceding float, which, though not accurate, will yet approximate considerably to the truth; and then

then the ordinary theory will furnish maxims of construction which will be very serviceable. This will be attempted in its proper place; and we shall endeavour, in our treatment of all the practical questions, to derive useful information from all that has been delivered on the present occasion.

RESOLUTION *of* IDEAS. See LOGIC, Part I. ch. 3.

RESOLUTION, in music. To *resolve* a discord or dissonance, says Rousseau, is to carry it according to rule into a consonance in the subsequent chord. There is for that purpose a procedure prescribed, both for the fundamental bass of the dissonant chord, and for the part by which the dissonance is formed.

There is no possible manner of resolving a dissonance which is not derived from an operation of cadence: it is then by the kind of cadence which we wish to form, that the motion of the fundamental bass is determined, (see CADENCE). With respect to the part by which the dissonance is formed, it ought neither to continue in its place, nor to move by disjointed gradations; but to rise or descend diatonically, according to the nature of the dissonance. Theorists say, that major dissonances ought to rise, and minor to descend; which is not however without exception, since in particular chords of harmony, a seventh, although major, ought not to rise, but to descend, unless in that chord which is, very incorrectly, called *the chord of the seventh redundant*. It is better then to say, that the seventh and all its derivative dissonances ought to descend; and that the sixth superadded, and all its derivative dissonances, should rise. This is a rule truly general, and without any exception. It is the same case with the rule of resolving dissonances. There are some dissonances which cannot be prepared; but there is by no means one which ought not to be resolved.

With respect to the sensible note, improperly called a *major dissonance*, if it ought to ascend, this is less on account of the rule for resolving dissonances, than on account of that which prescribes a diatonic procedure, and prefers the shortest road; and in reality, there are cases, as that of the interrupted cadence, in which this sensible note does not ascend.

In chords by supposition, one single chord often produces two dissonances; as the seventh and ninth, the ninth and fourth, &c. Then these two dissonances ought to have been prepared, and both must likewise be resolved; it is because regard should be paid to every thing which is discordant, not only in the fundamental, but even in the continued bass.

RESOLUTION, in chemistry, the reduction of a mixed body into its component parts or first principles, as far as can be done by a proper analysis.

RESOLUTION, in medicine, the disappearing of any tumor without coming to suppuration or forming an abscess.

RESOLVENTS, in medicine, such as are proper for dissipating tumors, without allowing them to come to suppuration.

RESONANCE, RESOUNDING, in music, &c. a sound returned by the air inclosed in the bodies of stringed instruments, such as lutes, &c. or even in the bodies of wind-instruments, as flutes, &c.

RESPIRATION, the act of respiring or breathing the air. See ANATOMY, n° 118. BLOOD, n° 29. MEDICINE, n° 104. PHYSIOLOGY, Sect. I. and PUTREFACTION *passim*.

RESPIRATION of Fishes. See ICHTHYOLOGY, n° 7, 8, 9.

RESPITE, in law, signifies a delay, forbearance, or prolongation of time, granted to any one for the payment of a debt or the like. See REPRIEVE.

RESPONDENT, in the schools, one who maintains a thesis in any art or science; who is thus called from his being to answer all the objections proposed by the opponent.

RESPONDENTIA. See BOTTOMRY.

RESPONSE, an answer or reply. A word chiefly used in speaking of the answers made by the people to the priest, in the litany, the psalms, &c.

RESSORT, a French word, sometimes used by English authors to signify the jurisdiction of a court, and particularly one from which there is no appeal.—Thus it is said, that the house of lords judge *en dernier ressort*, or in the last ressort.

REST, the continuance of a body in the same place, or its continual application or contiguity to the same parts of the ambient or contiguous bodies; and therefore is opposed to motion. See the article MOTION.

REST, in poetry, is a short pause of the voice in reading, being the same with the cæsura, which, in Alexandrine verses, falls on the sixth syllable; but in verses of 10 or 11 syllables, on the fourth. See POETRY, Part III.

REST-HARROW, or CAMMOCK, the *Ononis Arvensis*. A decoction of this plant has been much recommended to horses labouring under a stoppage of urine. It is the pest of some corn-fields; but in its younger state, before the plant has acquired its thorns, it is a most acceptable food to sheep.

RESTAURATION, the act of re-establishing or setting a thing or person in its former good state.

RESTIO, in botany; a genus of the triandria order, belonging to the diœcia class of plants. The male calyx is an ovate spike of membranaceous scales; the corolla is proper, hexapetalous, and persistent. The female calyx and corolla are as in the male; the germen is roundish, and sex-sulcated; there are three erect and persistent styles; the capsule is roundish, with six plaits, and is rostrated and trilocular; the seeds are oblong and cylindrical.

RESTITUTION, in a moral and legal sense, is restoring a person to his right, or returning something unjustly taken or detained from him.

RESTITUTION of Medals, or *Restituted Medals*, is a term used by antiquaries for such medals as were struck by the emperors, to retrieve the memory of their predecessors.

Hence, in several medals, we find the letters REST. This practice was first begun by Claudius, by his striking afresh several medals of Augustus. Nero did the same; and Titus, after his father's example, struck restitutions of most of his predecessors. Gallienus struck a general restitution of all the preceding emperors on two medals; the one bearing an altar, the other an eagle, without the REST.

RESTIVE, or RESTY, in the manege, a stubborn, unruly, ill-broken horse, that stops, or runs back, instead of advancing forward.

RESTO-

Restoration of Resurrection.

RESTORATION, the same with restauration. See RESTAURATION.

In England, the return of king Charles II. in 1660, is, by way of eminence, called the *Restoration*; and the 29th of May is kept as an anniversary festival, in commemoration of that event, by which the regal and episcopal government was restored.

RESTORATIVE, in medicine, a remedy proper for restoring and retrieving the strength and vigour both of the body and animal spirits.

All under this class, says Quincy, are rather nutrimental than medicinal; and are more administered to repair the wastes of the constitution, than to alter and rectify its disorders.

RESTRICTION, among logicians, is limiting a term, so as to make it signify less than it usually does.

RESTRINGENT, in medicine, the same with astringent. See ASTRINGENTS.

RESULT, what is gathered from a conference, inquiry, meditation, or the like; or the conclusion and effect thereof.

1 Definition.

RESURRECTION, in theology, is a rising again from the state of the dead; and is that event, the belief of which constitutes one of the principal articles in the Christian creed.

2 Plan of the article.

In treating of this object of our faith, it has been usual to mention, first, the resurrection of our Blessed Lord, with the character of the witnesses, and the authenticity of the gospel history by which it has been proved, and from which, as a consequence, ours is inferred. But as most of the arguments for his resurrection are contained in the gospels, and as merely to repeat them would afford, we hope, but little information to most of our readers, we mean here to take a view of the several grounds on which the belief of a future existence is supposed to be founded; to collect together some of the sentiments of authors and nations concerning the place where departed spirits reside; concerning the nature of their present state; concerning the kinds of their future destination; that we may afterwards see how far their notions differ and agree with what we consider as the doctrines of Scripture.

3 The notion of a future state unknown to some obscure tribes.

Of a future state, there have sometimes been found a few wandering and obscure tribes who seemed to entertain no notion at all; though it should be remarked, that some of these were likewise observed in so low a degree of savage barbarity as not to be acquainted with the use of the bow, the dart, or the sling, and as not knowing how to wield a club, or to throw a stone, as a weapon of defence *.

[illegible]

[illegible]

4 [illegible] primeval [illegible]

Wherever the human mind has been cultivated, or properly speaking, begun to be cultivated, the opinion has likewise generally prevailed that human existence is not confined to the present scene; nay, so very general has this notion been found among mankind, that many are puzzled how to account for what they suppose to be almost next to its universality.

5 The origin of this notion [illegible] primeval revelation.

To explain the phenomenon, some have imagined that it is a notion derived by tradition from primeval revelation. They suppose that the first parent of mankind, as a moral agent accountable for his conduct, was informed by his Maker of every thing which it was of importance for him to know; that he must have been acquainted with this doctrine of a future state in particular; and that he could hardly fail to communicate a matter so interesting to his posterity. They suppose, too, that the history of the translation of Enoch must have made a great noise in the world, and that the remembrance of it must have been long retained and widely diffused; and they find in the book of Job plain intimations of a resurrection from the dead, which, from the manner in which they are introduced, they think that very ancient patriarch must have received through this channel.

6 The usual objection to this opinion of no force.

It is not thought to be any objection to these suppositions, that the Most High, when delivering his laws from the top of Mount Sinai, did not enforce them by the awful sanctions of a future state. The intelligent reader of the Scriptures knows that the sanctions of a future state belong to a different and more universal dispensation than was that of Moses; that the primeval revelation related to that dispensation; and that the Jewish law, with its temporal sanctions, was introduced only to preserve the knowledge and worship of the true God among a people too gross in their conceptions to have been properly influenced by the view of future rewards and punishments, of such a nature as eye hath not seen, nor ear heard, neither hath it entered into the heart of man to conceive. He sees at the same time, everywhere scattered through the Old Testament, plain indications of the Mosaic economy, being no more than preparatory to the bringing in of a better hope; and he thinks it evident, that such Jews as understood any thing of the nature of that better hope, must have been convinced, that, however the *ceremonial rites* of *their* religion might be sufficiently guarded by temporal sanctions, the *fundamental principles* of *all* religion and virtue are supported by rewards and punishments to be dispensed in a state beyond the grave. See PROPHECY and THEOLOGY.

7 Reasons in support of the opinion.

That the progenitors of the human race must have been inspired by their Creator with the knowledge of their immortality, and of every thing necessary to their everlasting welfare, cannot, we should think, be questioned by any one who believes that the world had a beginning, and that it is under the government of goodness and justice. The progress from sense to science is so slow, that however capable we may suppose the earliest inhabitants of this earth to have been of making philosophical discoveries, we cannot believe that the Father of mercies left his helpless creature to discover for himself his future existence. Death, when first presented to him, must have been a ghastly object; and had he been left without any hope of redemption from it, he would undoubtedly have sunk into listless despondency.

But a prospect of immortality is so pleasing to the human mind, that if it was communicated to the first man, it would of course be cherished by his posterity; and there is no difficulty in conceiving how it might be handed down by tradition to very remote ages, among such of his descendents as were not scattered over the face of the earth in small and savage tribes. — In the course of its progress, it would frequently be new-modelled by the ever active imagination; and at last many absurd and fantastic circumstances would doubtless be combined with the original truth, that death puts not an end to human existence.

But though we are firmly convinced that the first principles of useful knowledge, and among them the doctrine of a future state, were communicated to man by

Resurrection.

by his Maker; and though this doctrine, in large and permanent societies, might certainly be conveyed more or less pure to late posterity through the channel of tradition—we are far from attributing so much to tradition as some writers are disposed to do, or thinking it the only source from which mankind could derive the belief of their existence beyond the grave. In small tribes of savages such a tradition could hardly be preserved; and yet some indistinct notions of a future state have been found among tribes who are said to have lost all traditionary notions even of the being of a God.

8 Conjecture that the soul may be expectured by natural phenomena.

Others, therefore, are inclined to believe that, independent of any traditions, mankind might be led by certain phenomena to form some conjectures of a future state. They observe, that although a few individuals perhaps may, yet it seldom happens that the whole individuals of any nation are exempted from dreaming: They observe, too, and this observation is founded on experience, that the images of the dead are from the remaining impressions of memory frequently summoned up in the fancy; and that it appears from all the languages of rude nations, who pay the greatest attention to their dreams, and who speak of seeing the dead in their visions, that these images (A) have always been taken by them for realities; nay, some of the learned, and the celebrated Baxter is of the number, are disposed to doubt whether these appearances be not something more than illusions of the brain: But whether they really be so or not, one thing is certain, that all nations in all countries, in the darkest ages and the rudest periods, are accustomed to dream; and whether sleeping or waking, in the stillness of the night, in the gloom of solitude, in the fondness of friendship, in the rovings of love, the delirium of fever, and the anguish of remorse, to see and converse with the shades of the departed; and Lucretius * has remarked, that even the inferior animals are not exempted from such illusions of a restless fancy.

For often sleeping racers pant and sweat,
Breathe short, as if they ran their second heat;
As if the barrier down with eager pace
They stretch'd, as when contending for the race.
And often hounds, when sleep hath clos'd their eyes,
They toss, and tumble, and attempt to rise;
They open often, often snuff the air,
As if they prest the footsteps of the deer;
And sometimes wak'd, pursue their fancy'd prey,
The fancy'd deer, that seem to run away,
Till quite awak'd, the follow'd shapes decay.
And softer curs, that lie and sleep at home,
Do often rouse, and walk about the room,
And bark, as if they saw some strangers come.
And birds will start, and seek the woods, by night,
Whene'er the fancy'd hawk appears in sight,
Whene'er they see his wing or hear him fight.

CREECH.

These powers of fancy extend wide over animal creation; and it is on this general principle that necromancers and dreamers have in all ages established their trade, that the stories of goblins have at all times so very easily procured belief, and that

The village matron, round the blazing hearth,
Suspends the infant audience with her tales,
Breathing astonishment! Of witching rhymes
And evil spirits; of the deathbed call
Of him who robb'd the widow and devour'd
The orphan's portion; of unquiet souls
Ris'n from the grave to ease the heavy guilt
Of deeds in life conceal'd; of shapes that walk
At dead of night, and clank their chains, and wave
The torch of hell around the murderer's head.

AIKENSIDE.

Mankind in general would willingly dispense with these troublesome visits of the dead. To prevent the return of the *zumbi* or the ghost, some nations of Africa use many superstitious rites*; and Kolben tells us, that the frighted Hottentots leave in the hut where a person has died all the utensils and furniture, lest the angry ghost, incensed at their avarice, should haunt them in their dreams, and infest them in the night. Divines and moralists have laboured to show that these are merely imaginary terrors: but God and nature seem to have determined that they shall produce the same effects upon certain minds as if they were real; and that while there is any sensibility in the heart, while there is any remembrance of the past, and any conjuring power in the fancy; the ignorant, the benighted, the timid, shall often meet with the goblins of darkness, the spectres of the tomb, the apparitions that hover round the grave, and the forms of the dead in the midnight dream. See SPECTRE.

* *Voyage to Congo and Angola Churchill's Voyages.*

10 Probable inferences from dreams, &c.

From these phenomena, which have been so common in all countries and in all ages, what would mankind naturally infer? Would they not infer, that there is something in the nature of man that survives death, and that there is a future state of existence beyond the grave? Are not still many specimens of this reasoning preserved in the ancient poets? and is it not thus that Achilles† reasons after imagining that he saw the ghost of his friend Patroclus?

† *Hom. Iliad.* lib. 23. l. 103.

'Tis true, 'tis certain, man, though dead, retains
Part of himself; the immortal mind remains:
The form subsists without the body's aid,
Aerial semblance, and an empty shade.
This night my friend, so late in battle lost,
Stood at my side a pensive plaintive ghost;
Ev'n now familiar as in life he came,
Alas! how diff'rent, yet how like the same. POPE.

Lucretius *, a studious observer of nature, though no friend to the soul's immortality, acknowledges frankly that these phantoms often terrify the mind, haunt us in our sleep, and meet us while awake. He confesses, too, that by such appearances mankind have been led to

* Lib. 3.

(A) These images were called by the Greeks [illegible]; and among the Romans they had various names, as *umbra*, *lemures*, *manes*, *larvæ*, and were sometimes called *occursacula noctium*, *bustorum formidamina*, *sepulchrorum terriculamenta*, *animæ erraticæ*, which are all comprehended under the [illegible].

Resurrection.

to believe the future existence of the soul; but, aware of the consequence,

> ——*Ne forte animas Acheruntè reamur*
> *Effugere, aut umbras inter vivos volitare,*

he endeavours to explain these curious phenomena on some of the odd and fantastic principles of the Epicureans. In doing this, however, he pretends not to deny that these images appear to be real; but candidly acknowledges that

> ——— They strike and shake
> The airy soul, as when we are awake,
> With stroke so lively, that we think we view
> The absent dead, and think the image true.
>
> CREECH.

We here see how the belief of the soul's immortality came to be general among mankind. But for this information we are much more indebted to the poets, who have given us faithful transcripts of nature, than to the philosophers who have wished to entertain us with their own theories, or to those laborious men of erudition, who have dreaded as much to examine the source of an ancient report as the friends of Ulysses to approach the coast of Cimmerian darkness. With them tradition is the ultimate boundary of research: and as gorgons, chimeras, and hydras, have come down to us by tradition; so they, with great sagacity, suspect, that tradition must likewise be at the bottom of the soul's immortality, and occasion the visions and phantoms of the dead.

11 Folly of allowing too much to tradition.

To tradition we have allowed all that it can justly claim; but we cannot allow it to be the only source of this opinion: and we have felt the highest indignation upon hearing men of learning and genius affirm, from a false zeal for the honour of revelation, that mankind, without this instruction, could never have acquired the art of building huts to screen them from the cold, or have learned the method of propagating their species! The reader must not here suppose that we allude to Polydore Virgil (B). We have in our eye persons now alive, with whom we have conversed on the subject, and who (terrified at the length to which some philosophers have carried the doctrine of instincts, and others the reasoning powers of the mind) have contended, with the utmost earnestness, that we know nothing—not even the functions of our animal nature—but by tradition or written revelation.

12 Opinions of philosophers.

Having now seen the source of the opinion concerning the future existence of the soul, and pointed out the natural phenomena by which mankind were led to embrace it, we come next to review the arguments by which the philosophers attempted to confirm it.

Pythagoras believed, with the rest of his country, that annihilation was never the end, and that nonentity was never the beginning, of any thing that is. His general doctrine upon this subject was shortly expressed in very few words, *Omnia mutantur, nihil interit.* He afterwards learned from Egyptian priests that the soul migrates into new bodies; and being, it seems, a person of a most extraordinary and astonishing memory, he found there was some truth in the story: for after musing, he began to remember that he was Euphorbus, the son of Pantheus, that was slain by Menelaus in the Trojan war; and upon a jaunt to Peloponnesus, recollected the shield which he had worn at the time of the siege, in one of the temples of Juno at Argos! That none might question the truth of his assertion, his followers presently removed all doubts by the famous argument, the IPSE DIXIT of Egyptian origin.

Pythagoras's doctrine of transmigration.

As Pythagoras taught that human souls are frequently thrust into brute shapes, and, as some imagined, by way of punishment; it occurred to Plato, that all bodies, even the human, are a sort of prisons; and that, in consequence of this confinement, the soul was subjected to the rage of desire, appetite, and passion, and to all the wretched miseries of a jail. To explain this mystery, he supposed that desires and appetites belong to a soul that is purely animal residing in the body. But he was perplexed with another difficulty; for as he thought highly of the goodness of Deity, he could not imagine how he should imprison us without a crime. He supposed, therefore, that prior to its union with the present body the soul had existed in one of ether, which it still retains; but that even in this etherial body it had felt something of impure desire; and happening to indulge the vicious appetite, had contracted some stains of pollution, for which it was confined in its present body as a house of correction to do penance and improve its morals.

Plato's doctrine of pre-existence.

To prove this ideal pre-existence of the soul, Plato availed himself of an opinion that was general in his time, that coincided with the doctrines of Pythagoras, and that was partly founded on a sort of reasoning and observation. He thought that matter and intelligence are coeternal (see PLATONISM); that there are various orders of souls; that those of both the man and the brute are parts or emanations (C) of the *anima mundi*, or soul of the world; that all are ultimately parts or emanations of Deity itself; and that all their faculties are more or less restricted and confined, according to those organised systems with which they are connected. Know first (says one delivering his doctrines),

And his proofs of it.

> Know first, that heav'n and earth's compacted frame,
> And flowing waters, and the starry flame,
> And both the radiant lights, one common soul
> Inspires, and feeds, and animates, the whole.

This

(B) This writer allots part of a chapter to show, "Quis primum instituerit artem meretriciam," as being, in his opinion, a traditionary practice. See Lib. iii. cap. 17. *De Rerum Inventoribus.*

(C) The Deity was conceived by the ancients sometimes as a solid, when inferior souls were called ἀπόσπασμα *i. e.* fragments or parts broken off from him; and sometimes as a fluid, when they were considered as ἀπορροιαι or emanations: but from none of these hypotheses did they reason consequentially. Their ἀποσπασματα were often after death reunited to the Deity; and their ἀπορροιαι often remained separate and distinct for a long while, without flowing back as they ought to have done, and mingling with the great ocean of spirit.

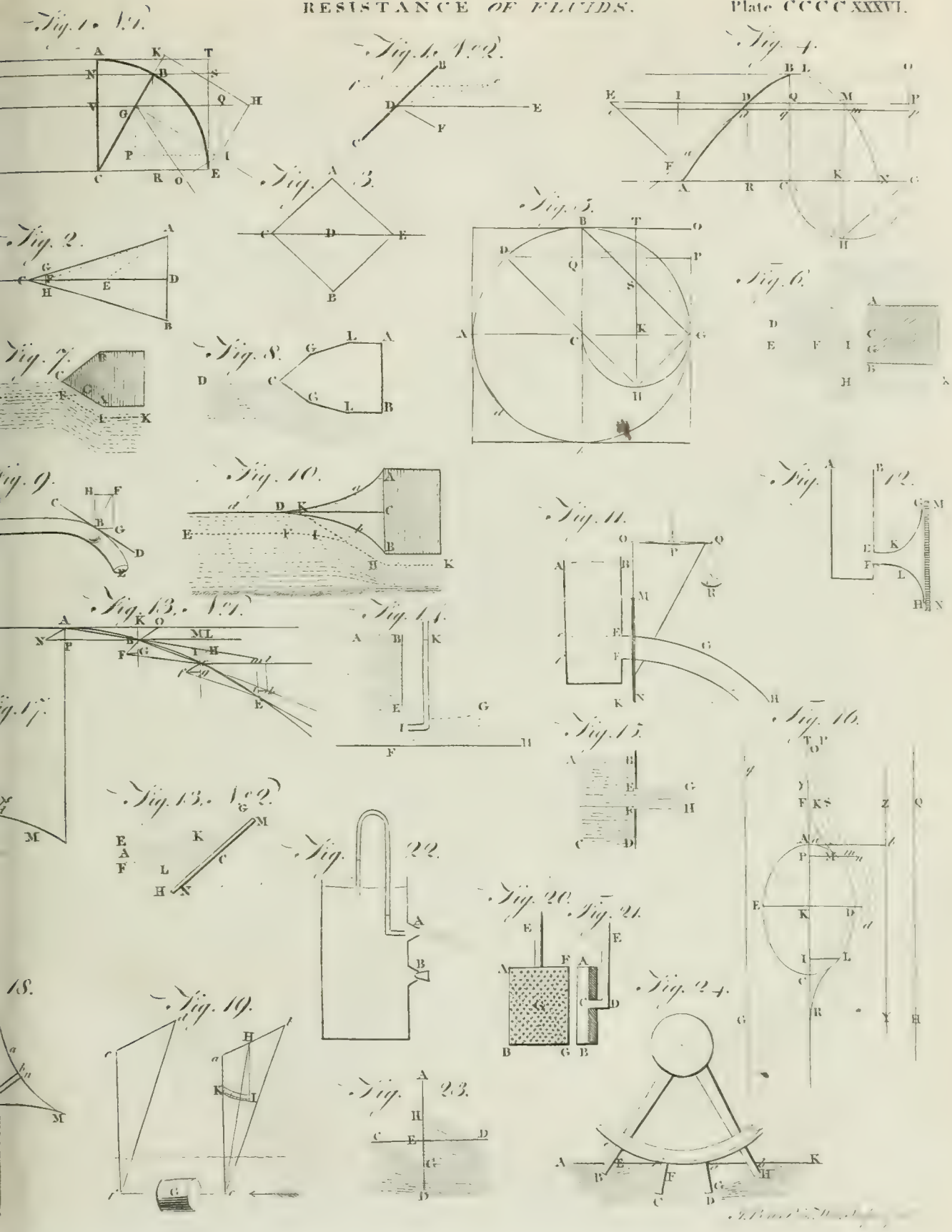
Fig. 1. No. 1.
Fig. 1. No. 2.
Fig. 4.
Fig. 3.
Fig. 2.
Fig. 5.
Fig. 6.
Fig. 7.
Fig. 8.
Fig. 9.
Fig. 10.
Fig. 11.
Fig. 12.
Fig. 13. No. 1.
Fig. 14.
Fig. 15.
Fig. 16.
Fig. 13. No. 2.
Fig. 22.
Fig. 20.
Fig. 21.
Fig. 24.
Fig. 19.
Fig. 23.

This active mind, infus'd through all the space,
Unites and mingles with the mighty mass:
Hence men and beasts the breath of life obtain,
And birds of air, and monsters of the main;
The ethereal vigour is in all the same,
And every soul is fill'd with equal flame;
As much as earthy limbs, and gross allay
Of mortal members, subject to decay,
Blunt not the beams of heav'n and edge of day (D).

DRYDEN.

Besides this hypothesis, that in some measure was common to others, Plato had an argument peculiarly his own. Happening to peep into the region of metaphysics, he was somewhat surprised on observing the ideas which we derive from reflection and consciousness; and supposing that they could not have entered by the senses, he naturally, though not very justly, concluded, that we must have received them in some state of prior existence.

As, according to him, the soul was eternal, as well as the matter which composed the body, and as their union was only temporary and accidental, he might have been satisfied that the death of the soul was not to be the consequence of their separation. But, some how or other, satisfied he was not. He had recourse to a new argument. As the soul, he said, was an active principle, and a self-moving, it did not depend for its life on another; and therefore would always continue to exist, though the body were reduced to the general mass out of which it was formed. See METAPHYSICS, Part III. chap. iv.

Whether Plato had borrowed any of his doctrines from the eastern magi, we pretend not to say. We only observe a striking similarity, in some respects, between his and theirs. In Plato's philosophy, the sun, moon, and stars, were animated beings, and a sort of divinities that originally had sprung from the great fountain of heat and light, and our earthly bodies a sort of dungeons in which our miserable souls are benighted and debased by desires, appetites, and passions. In the magian philosophy, the Supreme Being was called *Oromasdes;* was the god of light, or was light itself, and represented by Mithras, a subordinate divinity, and the same with the sun. Another deity of very great power was Arimanes, the god of darkness, who presided over matter, and was the origin of all evil (see POLYTHEISM).

The ancient Gnostics, who derived their tenets from this source, believed, with Pythagoras and Plato, in a great number of subordinate genii; and said, that Demiurgus, the god of matter and the soul or spirit of this world, had contrived the bodies of men and brutes; and in the former particularly, as in so many prisons, had confined a number of celestial spirits, that by exposing them to the low desires of appetite and passion, he might seduce them from their allegiance to the God of light, and render them more submissive to himself. From these prisons the Supreme Being was continually making attempts to rescue them; and in the mean time was frequently sending divine messengers to enlighten and instruct them, and to render them capable of returning to the regions of light and happiness, to which they had belonged (E). Resurrection.

The Stoics attempted to simplify this system, which appears anciently to have pervaded Egypt and the east, and which would seem to be no more than variously modified by Orpheus, Pythagoras, Plato, and others of the more northerly and western nations. None of them allowed a creation out of nothing; and the shaping and modelling of matter into forms was variously explained, according as they happened to be most addicted to superstition, to morals, or to physics. Some ascribed these operations to ancient Time, Chaos, and Darkness, and explained the future changes in nature by the genealogies of these deities; some observing attraction and repulsion, or at least a sort of agreement and discordance among bodies, were inclined to ascribe them to Friendship and Hatred, or Love and Antipathy; some observing, that while one body rose another descended, made Levity and Gravity primary agents; and some taking notice that living bodies sprung from corruption, were disposed to confer the same powers on Moisture and Heat.

17 Of the Stoics.

The physical hypotheses were what had most charms for the Stoics. From their system immaterial beings were openly excluded; all things were regulated by physical laws or inexorable fate; and all things originated in the Το Ἑν or the *First One*, which was probably suggested by the Μονας of Pythagoras. This Το Ἑν appears to have been a *materia prima* devoid of all the qualities of body. In their language it was an Αρχη or *first principle*, not subject to change. When it was invested with the properties of body, it then became a

(D) The general doctrine, as delivered here in these verses of Virgil, is the same with that not only of Pythagoras, but of the Stoics.

(E) Plato made the stars the native residence of inferior souls; and when these were thoroughly purified below, returned them home again: and therefore, says Virgil, alluding to his doctrine,

——————— Some have taught
That bees have portions of ethereal thought,
Endu'd with particles of heav'nly fires;
For God the whole created mass inspires:
Thro' heav'n, and earth, and ocean's depth, he throws
His influence round, and kindles as he goes.
Hence flocks, and herds, and men, and beasts, and fowls,
With breath are quicken'd, and attract their souls:
Hence take the forms his prescience did ordain,
And into him at length resolve again.
No room is left for death, they mount the sky,
AND TO THEIR OWN CONGENIAL PLANETS FLY. *Dryden.*

Resurrection.

a Στοιχεῖον or an *element*; and then, so far as respected its qualities, especially its forms, it was subject to changes almost perpetual. The gods themselves and the souls of men were in this system only modifications of matter (F). Man was composed of their four elements, Fire, Air, Water, and Earth; and upon dissolution, every part returned to the element from which it had come, as the water of a vessel swimming in the sea unites with the ocean when the vessel is broken. This system, it is plain, cannot possibly admit of any separate consciousness of existence (G). The same may be said of the systems of Democrates and Epicurus, and all those who undertook to explain things upon physical principles (H). The chief merit of the physical systems appears to be this: Absurd as they were, it would seem from the whimsical and the almost childish reasoning of Lucretius, that they had a tendency to lead mankind from extravagant hypotheses to something that was similar to observation.

18 Of Aristotle.

What Aristotle thought of the separate existence of the soul after death is not very certain. The soul he calls an Ἐντελέχεια; and if the reader can divine the meaning of the word, he perhaps can divine the meaning of the *Stagyrite*, and will then be a better diviner than we. At other times he says, that the soul is something divine; that it resembles the element of the stars; that it is something of a fiery nature; that it is the vicegerent of God in the body; and that the acuteness of the senses, the powers of the intellect, with the various kinds of appetites and passions, depend entirely on the qualities of the blood (I).

19 Of Critias and others.

Another opinion of very old date was that of the late ingenious Mr Hunter. According to him, the living principle resides in the blood. This opinion, which is mentioned by Moses, was adopted by Critias and others of the ancients. Harvey likewise embraced it. But Mr Hunter, who always wished to be thought an original, inclines to stand at the head of the opinion, and supports it by experiments similar to those of the famed Taliacotius in mending noses. Should any of our readers wish to extract the soul's immortality from such an opinion, we must refer them to the many resources of ingenuity, sophistry, and logic.

20 Of the Jews.

Among the Jews, the belief of a future and separate existence for a long time was deemed no essential article of their creed. Some thought that the soul was a spark in the moving of the heart; some imagined that it was the breath, and that upon the dissolution of the body it naturally vanished into soft air. The Sadducees denied the existence of either angel or spirit. Many believed the doctrine of ghosts, and were accustomed to invoke them at the grave. It is hence that we hear the prophets complaining that they were seeking from the living God unto dead men. Some imagined that there was a pre-existence of souls; and, in the case of a blind man, asked our Saviour, whether the man or his parents had sinned that he was born blind? Others inclined to a revolution of soul and body, and thought that our Saviour was either Elias or one of the old prophets returned; and a great many new-modelled their opinion of the soul's immortality according to certain passages in Scripture. The inspired mother of Samuel had said, "The Lord killeth and maketh alive: he bringeth down to the grave, and bringeth up." Isaiah had exclaimed, "Thy dead shall live; together with my dead body shall they arise: Awake, and sing, ye that dwell in the dust; for thy dew is as the dew of herbs, and the earth shall cast out the dead." Daniel had declared, that many of them that sleep in the dust of the earth shall awake to everlasting life, and some to shame and everlasting contempt. In the vision of the valley of dry bones, Ezekiel had seen that "at the word of the Lord" the bones came together, bone to his bone, the sinews and the flesh came upon them, and the skin covered them above, and the breath came into the bodies, and they lived and stood upon their feet. And a passage of Job led them to suppose, that at some distant and future period a particular time, which was called *the last* or the *latter day*, was appointed by heaven for the general resurrection of all those who are sleeping in their graves. "I know (says Job) my Redeemer liveth, and that he shall stand at the latter day upon the earth; and though after my skin worms destroy this body, yet in my flesh shall I see God."

Whether these passages were fairly interpreted agreeably to their true and original meaning, it is not here our business to inquire. It is sufficient for us to observe, that from them many of the Jews inferred the reality of a general resurrection (K). In this persuasion, Martha, speaking of her brother Lazarus, says to our Lord, "I know that he shall rise again in the resurrection at the last day." This resurrection appears to

(F) The Αρχη of the Stoics appears to be the same with the *Li* of the Chinese.

(G) Yet without regarding the inconsistency, many of the Stoics believed, that the soul continued separate long after death; though all in general seemed to deny a future state of rewards and punishments.

(H) In his *Physical Cosmogony*, Plato differed but little from the Stoics; but he had another sort of cosmogony, in which all things appear to have sprung from, and to be almost wholly composed of, metaphysical entities, as ideas of forms, numbers, and mathematical figures. These kinds of notions were common both to him and Pythagoras; and were originally borrowed from Egypt, where calculation and geometry were half deified. See PLATONISM.

(I) The immortal Harvey has collected these different opinions of the Stagyrite in Exercit. 52. *De Generatione Animalium*.

(K) At present some are for allowing only those of their own nation to share in the benefits of this resurrection; and some are not even for allowing them, except they be men of piety and virtue. To render this resurrection probable, the rabbins say, with some of the Mahometans, that there is a certain bone in the body which resists putrefaction, and serves as a seed for the next body*. What that bone is, is of no great moment, as any bone, we believe, in the skeleton will answer the purpose equally well. With respect to the manner of this resurrection, the learned Hody has quoted several opinions of the Jews, and, among others, that of the Chaldee

* See *Resurrection*.

to have been a general opinion among the Pharisees; for although it was a notion of the sect of the Sadducees that there was no resurrection, neither angel nor spirit, yet the Pharisees, we are told, confessed both. And this assertion is plainly confirmed by St Paul himself when his countrymen accused him before Felix, "I confess unto thee (says this eminent apostle), that after the way which they call heresy so worship I the God of my fathers, believing all things which are written in the law and in the prophets, and having hope toward God, which they themselves also allow, that there shall be a resurrection of the dead, both of the just and unjust."

This resurrection of the dead to judgment, though not perhaps in the same sense in which the old Pharisees conceived it, is now generally and almost universally (L) maintained by Christians (M). Yet the Christians differ considerably with respect to the nature of the human soul. Some imagine, that this spirit is naturally mortal, and that it is propagated along with the body from the loins of the parent. In support of this opinion, it has been observed that a great number of insects and plants transfer their lives to their posterity, and die soon after the act of propagation; that after this act the vital principle is in the most vigorous of plants and animals always found to be much exhausted; and that Tertullian a father of the church, in attempting some experiments of the kind, became subject to a momentary blindness, and felt a portion of his soul going out of him (N).

These imagine that immortality was only conditionally promised to man; that Adam forfeited this immortality by his disobedience; and that Christ has restored us to the hopes of it again by his sufferings and death: for as in Adam we have all died, so in Christ, they say, we shall all be made alive; and that now the sting is taken from death, and the victory over our souls from the grave.

Others have conceived the human soul as naturally immortal, and as setting death and the grave at defiance. Adam, they say, died only in a figure; and only from the consequences of this figure, which means sin, has our Lord saved us. In this sense Adam died on the very day in which he had sinned; or he died literally in 1000 years, which with the Lord are as one day. To these arguments their opponents reply, What then is the victory over death and the grave? You must still have recourse to a new figure, and betake yourselves to the second death; though, after all, where is your grave? To this it is answered, that the soul of itself is naturally immortal, and that it depends not either for its existence or the exercise of its faculties upon the body; that the properties of matter, as figure, magnitude, and motion, can produce nothing that is like to perception, memory, and consciousness. This is true, rejoin their opponents; but besides these few properties of matter, which are only the objects of that philosophy which has lately and properly been termed *mechanical*, the chemical philosophy has discovered other properties of matter; has found that matter is of various kinds; that it very often does not act mechanically; that it acquires many new properties by combination; and that no man, till farther experiment and observation, should venture to assert how far the soul is or is not dependent on its present organised system. The others, proceeding on their hypothesis, maintain that the soul, as being immaterial, is not divisible; and though the body of a frog may live without the head for a whole day; though the body of a tortoise may live without the head for a whole month; though a human limb may for some minutes after amputation continue to perform a vital motion, independent of a brain, a stomach, or a heart; and though the parts of a plant, a polype, or a worm, may survive their separation and become living wholes*, yet the soul, they observe, is not to be compared with the vital principles of plants and animals, nor ought to be divided on reasons so slender as those of analogy. Even granting, they say, that the soul were not naturally immortal of itself; yet the justice of God, which is not remarkable for its equal distribution of rewards and punishments in the present world, is bound to make some amends in the next. And to this again their opponents answer, as to the equal distribution of justice in a future world, of that we are assured on much better

* See Polypus and Reproduction.

dee paraphrast of the Canticles, asserting that the prophet Solomon had said, "When the dead shall revive, it shall come to pass that the Mount of Olives shall be cleft, and all the dead of Israel shall come out from thence; and the just too that died in captivity shall come through the way of the caverns under the earth, and shall come forth out of the Mount of Olives." He has likewise quoted Saunderson's Voyage to the Holy Land, in which, we are told that many of the Jews, by their own account, are to rise up in the valley of Jehosaphet; and that in the *rowling* or *devolution* of the caverns, those at a distance must scrape their way thither with their nails.

(L) The sect of the Quakers explain it figuratively.

(M) The last quoted author* (*Resurrection of the same Body, asserted from the traditions of the Heathens, the ancient Jews, and the primitive Church*) has endeavoured to show that this doctrine, in the same sense as we understand it, has been asserted by the ancient magi, and by the present heathen gaurs of Persia, the relics of the ancient magi; by some of the ancient Arabians; by some of the banians of India; by the present inhabitants of the island of Ceylon, of Java, of Pegu, of Transiana; by some amongst the Chinese; by the Arderians in Guinea; and by the ancient Prussians. The proofs which he brings, it must be confessed, are not however always very satisfactory. It appears, even from his own account, that some of these had derived their notions from certain Christians, Mahometans, or Jews. But the reader may judge of the great accuracy of his ideas from his bringing old Pythagoras and the Stoics, and even Democritus and Epicurus, in support of the same or a similar opinion.

* Hody.

(N) In illo ipso voluptatis ultimæ æstu quo genitale virus expellitur, nonne aliquid de anima quoque sentimus exire, atque adeo marcessimus et devigescimus cum lucis detrimento.

Resurrection.

ter grounds than any of your's: our Lord has declared it in express terms; and whether the soul be immortal or not, we can easily believe what he said is true, as we know him whom we have trusted.

These, with Plato, suppose, that the soul is here as in prison; though how or at what time it should first have come into this dungeon they have not determined. They have only agreed, that upon its enlargement all its faculties are to receive an increase of power; and "having already equipped it so exquisitely with consciousness, activity, and perception in and of itself, and put it into so complete a capacity for happiness and misery in a separate state," their hypothesis does not require them to admit the least occasion for a resurrection; which accordingly is said to have been an article of Baxter's creed (o).

A third opinion, which extends likewise to every species of plant and animal, is, that all souls were created at once with bodies of ether; that these bodies, occupying only a very small space, were packed up in their first progenitors, and there left to be afterwards evolved and clothed with matter of a grosser kind by acts of generation and consequent nutrition. For the proof of this theory we are referred to the small animals seen through the microscope, and likewise to those which are supposed to escape even microscopic observation; but, above all, to the eggs of insects, which, though scarcely perceptible, yet contain in embryo a future caterpillar and all its coats, and within these a future butterfly with its legs and wings. These philosophers can perhaps account for the general taint of original sin in some other way than has hitherto been done. We have only to add, that on their scheme the resurrection is not a matter that seems to be indifferent.

22 Place of the dead near to the grave.

The next thing that falls to be considered is the place of the dead. From a natural enough association of ideas, an opinion had very early prevailed, that the spirit continued near to the body; and the offerings therefore intended for the dead were by most nations presented at the grave; and that on which the departed spirit is supposed to rest is always placed near the grave in China.

23 In darkness.

From the dreams of the night and the natural tendency of the fancy to work and to summon up spectres when the world around us is involved in darkness, it has also been imagined, that these spirits delight in the night and shadow of death (p), or have been prohibited from enjoying the exhilarating beams of day. And hence we are told,

That in the dismal regions of the dead
Th' infernal king once rais'd his horrid head;
Leap'd from his throne, lest Neptune's arm should lay
His dark dominions open to the day,
And pour in light.

The nations, therefore, who have fancied a general receptacle for the dead, have thus been induced to place it in the west (q), where the night begins and the day ends. That part of the world which, in the division of his father's dominions, fell to Pluto the infernal god, and where, according to Lactantius, Satan holds the empire of darkness, the Friendly Islanders have placed to the westward of a certain island which they call *Tejee*; some tribes of American Indians, in a country beyond the western mountains; and Homer, somewhere to the westward of Greece at the boundaries of the ocean,

Where in a lonely land and gloomy cells
The dusky nation of Cimmeria dwells;
The sun ne'er views th' uncomfortable seats
When radiant he advances nor retreats.
Unhappy race! whom endless night invades,
Clouds the dull air, and wraps them round in shades.

Ref. t. In the west.

2 Under the earth.

Another opinion entertained by the Greeks and some other nations was, that the place of departed spirits is under the earth. This opinion is frequently mentioned in Homer, in Virgil, and alluded to by the Jewish prophets. As for the prophets, we know the circumstance from which they borrowed it: it was borrowed from those subterraneous vaults where their chiefs were buried, and which have been described by modern travellers. In the sides of these caverns there is ranged a great number of cells; and in these cells the mighty lay in a sort of state, with their weapons of war and their swords at their head. To these kinds of Egyptian cemeteries Ezekiel alludes, when he says, "that they shall not lie with the mighty that are fallen of the uncircumcised, who are gone down to hell with their weapons of war, and they have laid their swords under their head." And Isaiah, when thus speaking of the prince of Babylon, "Thou shalt be brought down to hell, *to the sides of the pit*. Hell from beneath is moved for thee, to meet thee at thy coming; it stirreth up the dead for thee, even all the chief ones of the earth; it hath raised up from their thrones all the kings of the nations. All the kings of the nations, even all of them, lie in glory, every one in his own house."

26 In hidden recepta.

Many of the ancient fathers of the church asserted only, that the dead are now *in abditis receptaculis*, or in certain hidden and concealed places.

27 In the air.

Orpheus, Origen, and some others of the fathers, with the ancient Caledonian bard Ossian, and the learned Dodwell among the moderns, imagined that the soul, when it left the body, went into the air, and resided somewhere between the surface of the earth and the moon.

28 In new bodies.

Those who believed in a transmigration caused the soul at death only to enter a new body, and kept the departed always with the living. This creed has been found in India, in Egypt, in Mexico, and in all those countries where picture-writing has been much used. In this species of writing, the same picture is on fancied analogy transferred by metaphor to signify either

(o) *An Historical View of the Controversy concerning an Intermediate State, and the Separate Existence of the Soul.*

(p) Some Turkish ghosts are an exception, who use lamps or candles in their tombs, when their friends choose to supply them with these luxuries.

(q) The *west* and *darkness* are synonymous in Homer. Ω φιλοι, ᾗ γαρ Τ'ιδμεν ὁκη ζοφος, ουδ' οκη ηως. (*Odyss.* "O my friends! which is the west, or which is the east, the place of darkness, or that of the morning, we cannot learn."

Refurrection.

ther a god or a man, a brute or a plant; and in those countries where it was practised, men had usually their names from animals, and were represented by their figure in writing (R). From this last stage of the process, a transmigration was easily supposed; and hence we hear of the gods of Egypt wandering about like so many vagrants in brute shapes, and of princes being translated into stars, because a star was their emblem in hieroglyphic, or stood for their name in figurative language. And, in like manner, we see, from the specimen of this character which is still preserved on celestial globes, how the heavens at first came to be filled with bears, scorpions, and dragons, and with a variety of other animals.

29 State of the dead according to the rude nations.

The opinions concerning the state of the dead are still more numerous than those concerning the place where they reside. Rude nations have generally thought that the future state is similar to the present; that plants, animals, and inanimate things there, have their shades; and that these contribute as much to the pleasures and conveniences of the dead as their realities do to the living; that husbands have their wives (S), lovers their mistresses, warriors their battles, huntsmen their sport; and that all their passions, amusements, and business, are the same as formerly. For this reason, that the dead may not appear unprovided in the next world, like the ancient Gauls, some tribes of India, America, and Africa, bury with them in the same grave their wives, their arms, their favourite animals, and their necessary utensils.

30 According to the Egyptians.

The ancient Egyptians, who believed in transmigration, supposed that the soul was after death obliged to animate every species of bird and quadruped, of reptile and insect, and was not to return to a human form till after a period of 3500 years. Others have confined their transmigrations to particular animals, as the soul of man to the human form, and the soul of the brute to the bodies of the species to which it belonged. Some have changed the brute into man, and man into the brute, that man might suffer injuries similar to what he had inflicted, and the brute retaliate what he had suffered. Others have confined the human soul in plants and in stones; and Bell of Antermony mentions an Indian who supposed that his ancestors might be in fishes.

31 According to Homer.

The notions of Homer were probably those of many of his time. But these notions were dismal indeed. When his hero Ulysses visited the shades, many of the ghosts seemed to retain the mangled and ghastly appearance which they had at death; and, what is worse, seemed to be all starving with hunger, innumerable multitudes, with loud shrieks, flocking to the steams of his slain victim as to a most sumptuous and delicious banquet.

For scarcely had the purple torrent flow'd,
And all the caverns smok'd with streaming blood,
When, lo! appear'd along the dusky coasts
Thin airy shoals of visionary ghosts;
Fair pensive youths, and soft enamour'd maids,
And wither'd elders, pale and wrinkl'd shades.
Ghastly with wounds, the forms of warriors slain,
Stalk'd with majestic port, a martial train.
These, and a thousand more, swarm'd o'er the ground,
And all the dire assembly shriek'd around.
Ulysses saw, as ghost by ghost arose,
All wailing with unutterable woes.
Alone, apart, in discontented mood,
A gloomy shade, the sullen Ajax stood;
For ever sad, with proud disdain he pin'd,
And the lost arms for ever stung his mind.
Upon Ulysses saying to Achilles,
Alive, we hail'd thee with our guardian gods;
And, dead, thou rul'st a king in these abodes;
The shade reply'd:
Talk not of ruling in this dol'rous gloom,
Nor think vain words (he cry'd) can ease my doom;
Rather I choose laboriously to bear
A weight of woes, and breathe the vital air,
A SLAVE TO SOME POOR HIND THAT TOILS FOR BREAD,
THAN LIVE A SCEPTER'D MONARCH OF THE DEAD.

In this gloomy region no one is rewarded for his virtue, nor is punished for his crimes, unless committed, like those of Sisyphus, Tantalus, and Ixion, against the gods. All indeed are classed into groups, from a certain analogy of age, sex, fate, and disposition; but all appear to be equally unhappy, having their whole heart and affections concentrated in a world to which they are fated never to return.

The Elysium of Homer is allotted only for the relations and descendants of the gods; and Menelaus goes to this country of perpetual spring (T), not as a person of superior merit, but because he had married the daughter of Jove.

32 Becomes a place of rewards and punishments.

Even long after a future state had become the scene of rewards and punishments, these for the most part were distributed, not according to moral, but physical distinctions. With the Greeks and Romans, the soul was condemned to many calamities for a number of years,

(R) A military gentleman who resided at Penobscot during the late American war, assured us that the Indians, when desired to subscribe a written agreement, drew always the picture of the object or animal whose name they bore. But for fuller information on this subject, see Clavigero's Hist. of Mexico.

(S) The question which the Sadducees put to our Saviour about the wife of the seven brothers, is a proof that the Pharisees thought there was marriage and giving in marriage in the future state, and that it was somewhat similar to the present.

(T) Homer sends the ghost of Hercules to the shades, while Hercules himself is quaffing nectar with Hebe in the skies. One soul of the hero is therefore repining with the ghosts of mortals in the regions below, while the other is enjoying all the happiness of the gods above. (See ODYSSEY, B. II. near the end). Philosophers since have improved on this hint of the poet; and men have now got rational, animal, and vegetable souls, to which sometimes a fourth one is added, as properly belonging to matter in general. Homer insinuates, that Menelaus was to be translated to Elysium without tasting death. This Elysium is the habitation of men, and not of ghosts, and is described as being similar to the seat of the gods. Compare *Odyss.* iv. l. 563. and *Odyss.* vi. l. 43. in the Greek.

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years, if the body was not honoured with funeral rites. Among the Scandinavians, a natural death was attended with infamy, while a violent death, particularly in battle, gave a title to sit in the halls of Odin, and to quaff beer from the skulls of enemies. Among the Tlascalans, it was only the great that were permitted to animate birds and the nobler quadrupeds; the lower ranks were transformed into weasels, into paultry beetles, and such mean animals. Among the Mexicans, those who were drowned, who died of a dropsy, tumors, or wounds, or such like diseases, went along with the children that had been sacrificed to the god of water, and in a cool and delightful place were allowed to indulge in delicious repasts and varieties of pleasures: those who died of other diseases, were sent to the north or centre of the earth, and were under the dominion of the gods of darkness. "The soldiers who died in battle, or in captivity among their enemies, and the women who died in labour, went to the house of the sun, who was considered as the prince of glory. In his mansions they led a life of endless delight. Every day the soldiers, on the first appearance of his rays, hailed his birth with rejoicings and with dancings, and the music of instruments and voices. At his meridian they met with the women, and in like festivity accompanied him to his setting. After four years of this glorious life, they went to animate clouds, and birds of beautiful feathers and of sweet song; but always at liberty to rise again, if they pleased, to heaven, or descend to the earth, to warble their songs, and to suck flowers*."

33 Thes at first distributed according to physical distinctions;

* Clavigero's Hist. of Mexico, vol. vi. p. 136.

These sentiments of a future state, conceived in a savage and a rude period, could not long prevail among an enlightened and civilized people. When the times of rapine and violence therefore began to cease; when societies regulated by certain laws began to be established; when martial prowess was less requisite, and the qualities of the heart had begun to give an importance to the character, the future state was also modelled on a different plan. In the Æneid of Virgil, an author of a highly cultivated mind, and of polished manners, it becomes a place of the most impartial and unerring justice; every one now receives a sentence suited to the actions of his past life, and a god is made to preside in judgment;

34 And afterwards according to moral distinctions.

Who hears and judges each committed crime,
Inquires into the manner, place, and time.
The conscious wretch must all his acts reveal,
Loth to confess, unable to conceal,
From the first moment of his vital breath,
To the last hour of unrepenting death.

The spirits of the dead no longer mingle together as in the less enlightened period of Homer; the vicious are dismissed to a place of torments, the virtuous sent to regions of bliss: indifferent characters are confined to a limbus*; and those who are too virtuous for hell, but too much polluted with the stains of vice to enter heaven without preparation, are for some time detained in a purgatory.

* Or paradise of fools.

35 Virgil's purgatory.

For there are various penances enjoin'd,
And some are hung to bleach upon the wind;
Some plung'd in waters, others purg'd in fires,
Till all the dregs are drain'd, and rust expires;
Till nothing's left of their habitual stains,
But the pure ether of the soul remains.

When thus purified, they become fitted to receive the rewards of their past virtues, and now enter into those regions of happiness and joy.

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36 His heaven.

With ether vested, and a purple sky,
The blissful seats of happy souls below,
Stars of their own, and their own suns they know;
Where patriots live, who, for their country's good,
In fighting fields were prodigal of blood.
Priests of unblemish'd lives here make abode,
And poets worthy their inspiring god;
And searching wits, of more mechanic parts,
Who grac'd their age with new-invented arts:
Those who to worth their bounty did extend;
And those who knew that bounty to commend.

These good men are engaged in various amusements, according to the taste and genius of each. Orpheus is still playing on his harp, and the warriors are still delighted with their chariots, their horses, and their arms.

The place of torment is at some distance.

37 His hell.

A gaping gulph, which to the centre lies,
And twice as deep as earth is distant from the skies;
From hence are heard the groans of ghosts, the pains
Of sounding lashes, and of dragging chains.
Here, those who brother's better claim disown,
Expel their parents, and usurp the throne;
Defraud their clients, and, to lucre sold,
Sit brooding on unprofitable gold.
Who dare not give, and even refuse to lend,
To their poor kindred, or a wanting friend.
Vast is the throng of these; nor less the train
Of lustful youths for foul adult'ry slain.
Hosts of deserters, who their honour sold,
And basely broke their faith for bribes of gold:
All these within the dungeon's depth remain,
Despairing pardon, and expecting pain.

38 His paradise of fools.

The souls of babes, of unhappy lovers, and some others, seem to be placed in a paradise of fools residing in a quarter distinct from Elysian Tartarus and Purgatory.

It is curious to observe, how much these ideas of a future state differ from the vague and simple conjectures of rude nations; and yet from their simple and rude conjectures, we can easily trace the successive changes in the writings of Homer, Plato, and Virgil; and may easily show, that those laws which different nations have prescribed for their dead, have always borne the strongest analogy to their state of improvement, their system of opinions, and their moral attainments. Some nations, as those of India, have fancied a number of heavens and hells, corresponding to some of their principal shades in virtue and vice; and have filled each of these places respectively with all the scenes of happiness and misery, which friendship and hatred, admiration, contempt, or rancour, could suggest. But having already observed the progress of the human mind in forming the grand and leading ideas of a future state, we mean not to descend to the modifications which may have occurred to particular nations, sects, or individuals.

39 The state of the dead as revealed in Scripture.

The belief of Christians respecting futurity demands our attention, as being founded on a different principle, namely, on express revelations from heaven. From many express declarations in Scripture, all Christians seem to be agreed, that there is a heaven appointed for the

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the good and a hell for the wicked. In this heaven the saints dwell in the presence of God and the uninterrupted splendors of day. Those who have been wise shine as the firmament, and those who have converted many to righteousness as the stars. Their bodies are glorious, immortal, incorruptible, not subject to disease, to pain, or to death. Their minds are strangers to sorrow, to crying, to disappointment; all their desires are presently satisfied; while they are calling, they are answered; while they are speaking, they are heard. Their mental faculties are also enlarged; they no more see things obscurely, and as through a cloud, but continually beholding new wonders and beauties in creation, are constantly exclaiming, "Holy, holy, holy! is the Lord of Hosts, worthy is he to receive glory, and honour, and thanksgiving; and to him be ascribed wisdom, and power, and might; for great and marvellous are his works, and the whole universe is filled with his glory."

40 The nature of heaven.

Their notions of hell differ considerably. Some understanding the Scriptures literally, have plunged the wicked into an abyss without any bottom; have made this gulph darker than night; have filled it with rancorous and malignant spirits, that are worse than furies; and have described it as full of sulphur, burning for ever. This frightful gulph has by some been placed in the bowels of the earth; by some in the sun; by some in the moon; and by some in a comet: but as the Scriptures have determined nothing on the subject, all such conjectures are idle and groundless.

41 The nature of hell.

Others imagine, that the fire and sulphur are here to be taken in a figurative sense. These suppose the torments of hell to be troubles of mind and remorses of conscience; and support their opinion by observing, that matter cannot act upon spirit; forgetting, perhaps, that at the resurrection the spirit is to be clothed with a body, and, at any rate, that it is not for man vainly to prescribe bounds to Omnipotence.

42 The middle state, different opinions about it.

What seems to have tortured the genius of divines much more than heaven or hell, is a middle state. On this subject there being little revealed in Scripture, many have thought it incumbent upon them to supply the defect; which they seem to have done in different ways. From the Scriptures speaking frequently of the dead as sleeping in their graves, those who imagine that the powers of the mind are dependent on the body, suppose that they sleep till the resurrection, when they are to be awakened by the trump of God, reunited to their bodies, have their faculties restored, and their sentence awarded.

43 According to some a state of sleep;

This opinion they support by what St Peter says in the Acts, that David is not ascended into heaven; and that this patriarch could not possibly be speaking of himself when he said, "Thou wilt not leave my soul in hell, *i. e.* the place of the dead." They observe, too, that the victory of Christ over death and the grave seems to imply, that our souls are subject to their power; that accordingly the Scripture speaks frequently of the soul's drawing near to, of its being redeemed from, and of its descending into, the grave; that the Psalmist, however, declares plainly, that when the breath of man goeth forth, he returneth to his earth, and that very day his thoughts perish. And should any one choose to consult Ecclesiastes, he will find, that the living know that they shall die, but that the dead know not any thing: that their love, and their hatred, and their envy, are perished; and that there is no work, nor device, nor wisdom, nor knowledge, in the grave, whether they are gone.

Those who believe that the soul is not for the exercise of its faculties dependent on the body, are upon its separation at death obliged to dispose of it some other way. In establishing their theory, they usually begin with attempting to prove, from Scripture or tradition, both its active and separate existence; but with proofs from tradition we intend not to meddle. Their arguments from Scripture being of more value, deserve our serious consideration; and are nearly as follow.

44 According to others, a state of conscious existence.

Abraham, they say, Isaac, and Jacob, are still living, because Jehovah is their God, and he, it is allowed, is not the God of the dead, but of the living. But their opponents reply, That this is the argument which our Saviour brought from the writings of Moses to prove a future resurrection of the dead; and that any person who looks into the context, will see it was not meant of a middle state. From the dead living unto God, our Saviour infers nothing more than that they shall live at the resurrection; and that these gentlemen would do well in future to make a distinction between simply living and living unto God: For though Abraham, Isaac, and Jacob, be living unto God, our Saviour has assured us that Abraham is dead, and the prophets dead.

A second argument is that glimpse which St Paul had of paradise about 14 years before he had written his Second Epistle to the Corinthians. To this argument their opponents reply, That as St Paul could not tell whether, on that occasion, he was out of the body or in the body, it is more than probable that the whole was a vision; and, at any rate, it is no proof of a separate existence.

A third argument is, St Paul's wishing to be absent from the body, and present with the Lord. But, say their opponents, St Paul desired not to be unclothed, but to be clothed upon: and as some of those who maintain a separate existence, bring Scripture to prove that the body || continues united to Christ till the resurrection; in that case, St Paul, if he wished to be present with the Lord, should have rather remained with his body than left it.

|| Shorter Catechism.

A fourth argument is, the appearance of Moses and Elias upon the mount of transfiguration. To which their opponents reply, that these saints appeared in their bodies; that Elias was never divested of his body; and that the account which we have of the burial of Moses, has led some of the ablest critics and soundest divines to conclude, that he was likewise translated to heaven without tasting death. At any rate, say they, he might have been raised from the dead for the very purpose of being present at the transfiguration, as the bodies of other saints certainly were, to bear testimony to our Lord's resurrection and victory over the grave.

A fifth argument is, what our Saviour said to the thief, "Verily I say unto thee, to-day thou shalt be with me in paradise." The objection usually made here is, that the expression is evidently ambiguous, and that the sense depends entirely on the punctuation: for if the point be placed after *to-day*, the meaning will be "Verily, even now, I tell thee, thou shalt be with me in paradise." But the import of paradise in this place, say the opponents, is likewise doubtful. We learn from St Peter's explanation of the 16th Psalm, that our Saviour's

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viour's soul was not to be left in hell; and we know that on the day of his crucifixion he went not to heaven: for after he had risen from the place of the dead, he forbade one of the women to touch him, as he had not yet ascended to the Father. Hell, therefore, and paradise, continue they, seem to be in this passage the very same thing, the place of the dead; and our Saviour's intention, they add, was not to go to heaven at that time, but to show his victory over death and the grave, to whose power all mankind had become subject by the disobedience of their first parents.

45 The soul is by some supposed to reside in the air till the resurrection.

Without pretending to enter into the merits of this dispute, the ingenious Burnet, in his Theory of the Earth, endeavours to prove, upon the authority of the ancient fathers, that paradise lies between the earth and the moon; and the learned Dodwell, on the same authority, has made it the common receptacle of souls till the resurrection; but has not told us whether or not they are to be accountable for the actions of this separate existence at the latter day, or are only to be judged according to the deeds that were done in their bodies.

46 The church of Rome supposes a purgatory.

This notion of a common receptacle has displeased many. The state of purgation, obscurely hinted in the doctrines of Pythagoras, and openly avowed by Plato and Virgil, has been adopted by the Romish divines, who support their opinion on certain obscure passages of scripture, which are always of a yielding and a waxen nature, may easily be twisted to any hypothesis, and like general lovers espouse rather from interest than merit.

47 Others suppose that the soul after death enters a state of rewards and punishments in a certain degree.

It has displeased others, because they are anxious that the righteous should have a fore-taste of their joys, and the wicked of their torments, immediately after death, which they infer to be certainly the case from the parable of the rich man and Lazarus(u). But to this it is objected, that the rich man is supposed to be in hell, the place of torments, and that this punishment ought not to take place on their own hypothesis till after the sentence at the resurrection.

Another argument used for the intermediate state is the vision of St John in the Apocalypse. In this vision the Evangelist saw under the altar the souls of those that were slain for the word of God and for the testimony which they held. Their opponents doubt whether these visible souls were immaterial, as St John heard them cry with a loud voice, and saw white robes given unto every one of them. If they had bodies, that circumstance might chance to prove a resurrection immediately after death, and so supersede the general resurrection at the last day.

While such conclusions as are here drawn from the parable and vision, say the opposers of an intermediate conscious existence, imply that the dead are already raised, and are now receiving the respective rewards of their virtues and their crimes; those who maintain an intermediate separate existence, who speak of the body as a prison, and of the soul as receiving an increase of power when freed from the body, are certainly not more than consistent with themselves, when they think that this soul would derive an advantage from its after union with either a new system of matter or the old one, however much altered. Baxter, they say, who saw the inconsistency, was disposed to reason somewhat like Æneas,

> O, Father! can it be that souls sublime
> Return to visit our terrestrial clime?
> Or that the gen'rous mind, releas'd at death,
> Should covet lazy limbs and mortal breath?

In no one instance, they continue, have Christians perhaps more apparently than in this argument wrested the scriptures to their own hurt: by thus rashly attemping to accommodate the sacred doctrines of religion to a preconceived philosophical hypothesis, they have laid themselves open to the ridicule of deists, and have been obliged, for the sake of consistency, either to deny or to speak slightingly of the resurrection; which is certainly the surest foundation of their hope, seeing St Paul hath assured us, that if there be no resurrection of the dead, then they which are fallen asleep in Christ are perished, and those who survive may eat and drink, and act as they please, for to-morrow they die; and die, too, never to live again.

Though this reproof may be rather severe, we are sorry to observe that there seems to have been sometimes too much reason for it. A certain divine†, whose piety was eminent, and whose memory we respect, having written "An Essay toward the proof of a separate State of Souls between Death and the Resurrection, and the Commencement of the Rewards of Virtue and Vice immediately after death," has taken this motto, "Because sentence against an evil work is not executed speedily, therefore the heart of the sons of men is fully set in them to do evil." "The doctrine, he says, of the resurrection of the body and the consequent states of heaven and of hell, is a guard and motive of divine force, but it is renounced by the enemies of our holy Christianity; and should we give up the recompenses of separate souls, while the deist denies the resurrection of the body, I fear, between both we should sadly enfeeble and expose the cause of virtue, and leave it too naked and defenceless."

† Dr Wa.

This author, who wishes much that the punishment of crimes should follow immediately after death, is of opinion, that if heaven intended to check vice and impiety in the world, it has acted unwisely, if it really has deferred the punishment of the wicked to so late a period as the resurrection. "For such, he observes, is the weakness and folly of our natures, that men will not be so much influenced and alarmed by distant prospects, nor so solicitous to prepare for an event which they suppose to be so very far off, as they would for the same event if it commences as soon as ever this mortal life expires. The vicious man will indulge his sensualities, and lie down to sleep in death with this comfort, I shall take my rest here for 100 or 1000 years, and perhaps in all that space my offences may be forgotten; or let the worst come that can come, I shall have a long sweet nap before my sorrows begin: and thus the force of divine terrors is greatly enervated by this delay of punishment."

Thus far our author, who thinks that his hypothesis, if not true, is at least expedient, and that from motives of expediency it ought to be inculcated as a doctrine

(u) Whitby shows that this parable was conformable to the notions of the Jews at that time; and even the Mahometans, who believe in the resurrection of the dead, suppose likewise a state of rewards and punishments in the grave.

trine of Scripture; but how far his reasons can be here justified we mean not to determine; we shall leave that to be settled by others, reminding them only that the distance of future rewards and punishments is not greater on the supposition of the sleep of the soul than on the contrary hypothesis. Every man who has but dipt into the science of metaphysics knows, and no man ever knew better than he who is believed to have been the author of the work before us, that time unperceived passes away as in an instant; and that if the soul be in a state void of consciousness between death and the resurrection, the man who has lain in his grave 1000 years will appear to himself to have died in one moment and been raised in the next. We would likewise recommend to those who may henceforth be inclined to inculcate any thing as a doctrine of Scripture merely on account of its supposed expediency, always to remember that God is above, that they are below, that he is omniscient, that they are of yesterday and know little, that their words therefore should be wary and few, and that they should always speak with respect of whatever concerns the Sovereign of the universe, or relates to his government either in the natural or moral world. For wilt thou, says the Highest, disannul my judgement? Wilt thou condemn me that thou mayest be righteous? shall he that contendeth with the Almighty instruct him? He that reproveth God let him answer it.

If, in stating these opposite opinions, we may seem to have favoured what has been called the sleep of the soul, it is not from any conviction of its truth, for there are particular texts of Scripture which appear to us to militate against it. We are satisfied, however, that it is a very harmless opinion, neither injurious to the rest of the articles of the Christian faith nor to virtuous practice; and that those who have poured forth torrents of obloquy upon such as may have held it in simplicity and godly sincerity, have either mistaken the doctrine which they condemned, or been possessed by a spirit less mild than that of the gospel (x).

Whatever be the fate of the middle state, the resurrection stands on a different basis. It is repeatedly asserted in Scripture; and those grounds on which we believe it are authenticated facts, which the affectation, the ingenuity, and the hatred of sceptics, have numberless times attempted in vain to disprove. These facts we are now to consider, referring our readers for the character of the witnesses, the authenticity of the gospel-history, and the possibility of miracles, to the parts of this work where these subjects are treated (See MIRACLE, METAPHYSICS, Part I. Chap. vii. and RELIGION); or, should more particular information be required, to the writings of Ditton, Sherlock, and West.

Our Lord, after proving his divine mission by the miracles which he wrought, and by the completion of ancient predictions in which he was described, declared that the doctrine of a resurrection was one of those truths which he came to announce. To show that such an event was possible, he restored to life the daughter of Jairus, a ruler of the synagogue, a young man of Nain, who was carried out on his bier to be buried, and his friend Lazarus, whose body at the time was thought to have become the prey of corruption. Though the two first of these miracles were wrought in the presence of a number of witnesses, yet the last, owing to particular circumstances, produced a much greater noise among the Jews. It was performed on a person seemingly of some note, in the village of Bethany, not far from Jerusalem, and in the presence of a great many persons who from the metropolis had come to condole with Mary and Martha. No doubts were entertained of the reality of Lazarus's death. Our Lord was at a distance when he expired, and his body had already been lying for some days in the grave. When he came forth at the voice of our Lord, all were astonished. Those from Jerusalem, on returning home, are impatient to relate what they had seen; those who heard of so memorable an event cannot conceal it; the report reaches the ears of the Pharisees and chief priests. They are soon made acquainted with every circumstance; and dreading the issue, they think it necessary to call a council upon the occasion, and concert the measures that ought to be pursued in a matter which was likely to be attended with so many and important consequences. In this council, it seemed to be agreed that our Lord had performed, and was still continuing to perform, many miracles: That this last miracle, as being of an extraordinary kind, would make many converts; and that if measures were not speedily taken to prevent these uncommon displays of his power, all would believe on him: the jealousy of the Romans would be excited, the rulers deposed, and the nation of the Jews deprived of its few remaining privileges. Yet, notwithstanding these private concessions made in the council, the members who dreaded to let their sentiments be known to the people, affect in public to treat our Saviour as an impostor. But he who already had demonstrated the absurdity of their opinion, who supposed that his miracles were wrought by Beelzebub prince of the devils, is again ready to confute the ridiculous assertion of those who pretended to say that they were a deception. His friend Lazarus was still living at the distance of only a few miles, and many of the Jews who had gone to see him were ready to attest the truth of the report. If the rulers, apprehending the consequences of the truth, be afraid to know it, and if they are unwilling to go to Bethany, or to send for Lazarus and those who were present at his resurrection, our Lord gives them a fair opportunity of detecting his fraud, if there was any such to be found in him. To preserve their power, and remove the jealous suspicion of the Romans, it had been already determined in council to put him to death; and our

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49 The possibility of it shown by our Saviour's raising several persons from the dead;

(x) Perhaps no man has been more culpable in this respect than the celebrated Warburton, who seems at first to have himself denied an intermediate state of conscious existence. He afterwards imagined that such a state is supposed, though not expresly asserted, in Scripture; and at last he maintained it with all the zeal and warmth of a proselyte. To prove the sincerity of his conversion, he treated his adversaries with scurrilous nicknames, banter, and abuse; a species of reasoning which seldom succeeds in recommending a bad cause, and which never confers credit on one that is good.

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our Lord foretels that the third day after his death he shall rise from the grave. Here no place was reserved for deception. The sect of the Pharisees and the chief priests are openly warned and put upon their guard; and, very fortunately for the cause of Christianity, this singular prediction was not heard with scorn, or indeed, if with scorn, it was only affected. We know from the sentiments expressed in the council, that our Lord was secretly dreaded by the rulers; that his miracles were far from being discredited; and that his predictions, in their private opinion, were not to be slighted. The means accordingly which they employed to prevent, even in the very appearance, the completion of his prophecy, were admirably calculated to remove the scruples of the most wary and sceptical inquirers, if their object was only to search after truth. At the next festival of the passover, when the scheme of Caiaphas was put in execution, and when it was deemed expedient by the council that he should die, to save the nation from the jealousy of the Romans; as a proof of their steady loyalty to Rome he was apprehended, was tried as an enemy to her government, was at last condemned upon false evidence, and suspended on a cross until they were fully satisfied of his death. Even after his death, the spear of a soldier was thrust into his side; and the water that gushed out with the blood is a proof to those who are acquainted with the structure and economy of living bodies, that he must have been some time dead.

50 And above all by His own resurrection.

After he was taken down from the cross, a seal was put on the door of the sepulchre in which he was laid, as the best check against secret fraud; and a guard of soldiers was stationed around it, as the best security against open violence. In spite, however, of all these precautions, the prediction was accomplished; the angel of God, descending from heaven with a countenance like lightning, and with raiment white as snow; the watch shake, and become as dead men; the earth quakes; the stone is rolled from the mouth of the sepulchre; the angel sits on it, and our Lord comes forth.

It was in vain for the Jews to allege that his disciples came in the night, and stole him away, while the watch were asleep. One must smile at these puerile assertions. How came the disciples to know that the watch were asleep; or what excuse had the watch for sleeping, and incurring a punishment which they knew to be capital in the Roman law? and how came they, in the name of wonder, to be brought as an evidence for those transactions that happened at the time when they were asleep?

Whatever credit may be given by modern infidels to this ill-framed story, it is past dispute that it had none among the Jewish rulers at the time that it was current. Not long after our Saviour's resurrection, the apostles were called before the council, and threatened with death for teaching in the name of Jesus. Their boldness upon that occasion was so provoking to the rulers, that the threat would have been instantly put in execution, had not Gamaliel, a doctor of the law of high reputation, put them in mind of other impostors who had perished in their attempts to mislead the people; and concluded a very sensible speech with these remarkable words: "And now, I say unto you, refrain from these men, and let them alone; for if this counsel, or this work, be of men, it will come to nought; but *if it be of God*, ye cannot overthrow it, lest haply ye be found even to fight against God." This advice the council followed. But is it possible that Gamaliel could have given it, or the council paid the least regard to it, had the story of the disciples stealing the body been then credited? Surely some among them would have observed, that a work or counsel, founded on imposture and fraud, could not be *supposed to be of God*, and they would unquestionably have slain the apostles.

The story of stealing the body is indeed one of the most senseless fictions that ever was invented in support of a bad cause. Our Lord was on earth 40 days after he arose. He appeared frequently to his disciples. He ate and drank in their presence; and when some of them doubted, he bade them handle him and see that he was not a spectre, showed the mark of the spear in his side, and the prints of the nails in his feet and hands. Besides thus appearing to his disciples, he was seen by more than 500 brethren at one time; all of whom, as well as his disciples, must necessarily have known him previous to his suffering, and could therefore attest that he was the person who was once dead, but was then alive. Yet for strangers in general, who had not seen him previous to his death, and could not therefore identify his person after he arose, our Lord reserved many other proofs that were equally convincing. Before his ascension, he bade his disciples wait till they received power, by the Holy Ghost descending upon them: That then they should be witnesses with him, both in Jerusalem, and in all Judea, and in Samaria, and unto the uttermost ends of the earth; in order that the people of all these nations, observing the miracles wrought in his name, might themselves become ocular witnesses that those who preached his resurrection were warranted to do so by his authority; and that this authority, on which so numerous miracles attended, must be divine.

We intend not here to examine the minute objections and cavils that have been advanced respecting the truth of this important fact. The kinds, however, we shall mention in general. Some have doubted of our Lord's resurrection, as being an event which is not confirmed by general experience, because they imagine that what happens once should happen again, and even repeatedly, in order to be true. Some, taking their own to be preferable schemes, have objected to the way in which it happened, and to the manner in which it is narrated.—Some have imagined, that possibly the gospel history may be false; that possibly the disciples were very ignorant, and might be deceived; that possibly, too, they were deep politicians, and a set of impostors; and that possibly the writings which detected their falsehoods may have been destroyed. It is difficult to reason, and worse to convince, against this evidence of possibilities: but we flatter ourselves, that to the candid reader it will appear sufficiently overturned in our article MIRACLE; where it is shown that neither clowns nor politicians could have acted the part that was acted by the apostles, had not the resurrection been an undoubted fact.

Some of the objectors to it have also maintained, that possibly there is nothing material without us, that there is nothing mental within us, and that possibly the whole world is ideas. This mode of arguing we pretend not to explain; it is thought by some to proceed entirely from a perverseness of mind or disposition, while in books

of medicine it is always considered as a ſymptom of diſeaſe, and the patient recommended to be treated in the hoſpital, and not in the academy.

By his raiſing others, and particulary by riſing himſelf, from the dead, our Saviour demonſtrated that a reſurrection from the dead is poſſible. And on that authority, which by his miracles he proved to be divine, he declared to his followers, that there is to be a general reſurrection both of the juſt and of the unjuſt, inſtructing his diſciples to propagate this doctrine through all nations; St Paul confeſſing, that if there be no reſurrection of the dead, preaching is vain, and our faith is vain.

As to the order of ſucceſſion in which the dead are to be raiſed, the Scriptures are almoſt ſilent. St Paul ſays, that every man is to riſe in his own order, and that the dead in Chriſt are to riſe firſt: and St John obſerved in his viſion, that the ſouls of them which were beheaded for the witneſs of Jeſus, and for the word of God, and which had not worſhipped the beaſt, neither his image, neither had received his mark upon their foreheads, or in their hands, lived and reigned with Chriſt a thouſand years; but the reſt of the dead lived not again until the thouſand years (Y) were finiſhed.

A queſtion that has much oftener agitated the minds of men is, with what ſort of bodies are the dead to be raiſed? St Paul has anſwered, with incorruptible and immortal bodies (Z). And to ſilence the diſputatious caviller of his day, he illuſtrated his doctrine by the growth of grain. "Thou fool (ſaid he), that which thou ſoweſt, thou ſoweſt not that body that ſhall be, but bare grain, it may chance of wheat or of ſome other grain." To us it appears very ſurpriſing, that any one who reads this paſſage with the ſlighteſt attention, ſhould perplex himſelf, or diſturb the church with idle attempts to prove the identity of the bodies with which we ſhall die and riſe again at the laſt day. The apoſtle expreſsly affirms, that "fleſh and blood cannot inherit the kingdom of God; that we ſhall all be changed, in a moment, in the twinkling of an eye, at the laſt trump; that there are celeſtial bodies and bodies terreſtrial; and that the glory of the celeſtial is one, and the glory of the terreſtrial another."

That this implies a total change of qualities, will admit of no diſpute; but ſtill it has been conſidered as an article of the Chriſtian faith, that we are to riſe with the ſame bodies in reſpect of ſubſtance. What is meant by the identity of ſubſtance, with qualities wholly different, it is not very eaſy to conceive. Perhaps the meaning may be, that our incorruptible bodies ſhall conſiſt of the ſame material particles with our mortal bodies, though theſe particles will be differently arranged to produce the different qualities. But as the particles of our preſent bodies are conſtantly changing, and as different particles compoſe the body at different times, a queſtion has been put, With what ſet of particles ſhall we riſe? Here a ſingular variety of opinions have been held. Some * contend, that we ſhall riſe with the original ſtamina of our bodies derived from our parents; ſome are for riſing with that ſet of particles which they had at birth; ſome with the ſet which they are to have at death; and ſome with the particles which remain after maceration in water†; though, God knows, that if this maceration be continued long, theſe may ariſe with few or no particles at all. Another query has given much alarm. What if any of theſe particles ſhould enter a vegetable, compoſe its fruit, and be eaten by a man, woman, or a child? Will not a diſpute, ſimilar to that apprehended by the Sadducees about the wife of the ſeven brothers, neceſſarily follow, whoſe particles are they to be at the reſurrection? Againſt this confuſion, they truſt that the goodneſs and wiſdom of heaven will take all the proper and neceſſary meaſures; and they even venture to point out a way in which that may be done. A foot deep of earth, they obſerve, in two or three of the counties of England, ſuppoſing each perſon to weigh on an average about ſeven ſtones and a few pounds, would amply ſupply with material bodies 600,000,000 of ſouls for no leſs a ſpace than 20,000 years§; and therefore there ſeems to be no neceſſity for the vamping up of their old materials to lodge and accommodate new ſouls.

But, unluckily here, the queſtion is not about the poſſibility of keeping the particles of different bodies ſeparate and diſtinct. The queſtion is rather, What have the Scriptures determined on the ſubject? Now the Scriptures ſay, that the ſpirit returns unto God who gave it. And ſhould it be aſked, in what place does he reſerve it till the reſurrection? the Scriptures reply, in the place of the dead; becauſe the ſoul deſcends into the pit, is redeemed from the grave; and the ſting of death, the laſt enemy that is to be deſtroyed, ſhall be taken away when the trumpet of God ſhall ſound: at which time the dead that ſleep in their graves ſhall awake, ſhall hear the voice, and ſhall come forth. There is not here ſo much as a word concerning the body; and therefore it was aſked with what bodies are the dead to be raiſed? To which it was anſwered, the vile body is to be changed. The body which is, is not the body which ſhall be; for the incorruptible muſt put on incorruption, and that which is mortal, put on immortality.

This curious diſcovery of the ſentiments of Scripture we owe to a lay-man, the celebrated Locke; who, in one of his controverſies with the biſhop of Worcester, came to underſtand what he knew not before, namely, that nowhere have the Scriptures ſpoken of the reſurrection of the ſame body in the ſenſe in which it is uſually conceived. The reſurrection of the ſame perſon is indeed promiſed; and how that promiſe may be fulfilled, notwithſtanding the conſtant change of the particles of the body, has been ſhown in another place. See METAPHYSICS, Part III. Chap. iii.

The advocates, therefore, for the reſurrection of the mortal body, have again been obliged to betake themſelves to the ſhifts of reaſoning. It is proper, ſay they, that

Reſurrection.

† Holy.

§ See Holy's Reſurrection of the ſame body aſſerted.

(Y) Theſe thouſand years formed the happy millenium ſo often mentioned in the ancient fathers; and the learned Burnet, in his Theory of the Earth, has endeavoured to prove, that a ſimilar notion prevailed among the Jews. See MILLENIUM.

(Z) Our Saviour roſe with the ſame body, both as to ſubſtance and qualities; becauſe it was neceſſary that his perſon ſhould be known and identified after his reſurrection.

Resurrection || Retardation.

that the same bodies which have been accomplices in our vices and virtues, should also share in our rewards and punishments. Now, granting they will, shall one set of particles be bound for the crimes, or be entitled to receive the rewards, of the animal system, from its first commencement to its dissolution? or shall every particle rise up successively, and receive its dividend of rewards and punishments for the vices and virtues that belonged to the system during the time that they were in union with the sentient principle? and is the hand that fell in defending a father to be (as is supposed in some of the eastern countries) rewarded in heaven; while the other that struck him when the son became vicious, is dismissed into torments?

Finding this hypothesis supported by neither Scripture nor reason, they next appeal to the ancient fathers. And they, it is confessed, are for the resurrection of the very same flesh. But this notion is directly contrary to the Scriptures, which have said, that flesh and blood are not to inherit the kingdom of God.

55 State after the resurrection.

But whatever be the bodies with which the dead are to be raised at the general resurrection, all mankind must appear in judgment, and receive sentence according to the deeds done in the body, without regard, so far as we know, to their actions and conduct in the middle state. After this sentence, the righteous are to enter into celestial and eternal joys, and the wicked to suffer the punishments of hell. These punishments some have supposed to be everlasting; others think, that after some temporary punishment, the souls of the wicked are to be annihilated; and others imagine, that after doing purgatorial penance for a while in hell, they are to be again received into favour; inclining to explain the denunciations of the Almighty as a child would do the threatenings of his mother, or a lover the affected chidings of his mistress (A).

RESUSCITATION, the same with resurrection and revivification. See the preceding article and REANIMATION.

The term *resuscitation*, however, is more particularly used by chemists for the reproducing a mixed body from its ashes; an art to which many have pretended, as to reproduce plants, &c. from their ashes.

RETAIL, in commerce, is the selling of goods in small parcels, in opposition to wholesale. See COMMERCE.

RETAINER, a servant who does not continually dwell in the house of his master, but only attends upon special occasions.

RETAINING FEE, the first fee given to a serjeant or counsellor at law, in order to make him sure, and prevent his pleading on the contrary side.

RETALIATION, among civilians, the act of returning like for like.

RETARDATION, in physics, the act of diminishing the velocity of a moving body. See GUNNERY, MECHANICS, PNEUMATICS, and PROJECTILES.

RETE MIRABILE, in anatomy, a small plexus or network of vessels in the brain, surrounding the pituitary gland.

Retention.

RETENTION is defined by Mr Locke to be, a faculty of the mind, whereby it keeps or retains those simple ideas it has once received, by sensation or reflection. See METAPHYSICS, Part I. Chap. ii.

RETENTION is also used, in medicine, &c. for the state of contraction in the solids or vascular parts of the body, which makes them hold fast their proper contents. In this sense, retention is opposed to evacuation and excretion.

RETICULAR BODY *(corpus reticulare)*, in anatomy, a very fine membrane, perforated, in the manner of a net, with a multitude of foramina. It is placed immediately under the cuticle; and when that is separated from the cutis, whether by art or accident, this adheres firmly to it, and is scarce possible to be parted from it, seeming rather to be its inner superficies than a distinct substance. In regard to this, we are to observe, first, the places in which it is found, being all those in which the sense of feeling is most acute, as in the palms of the hands, the extremities of the fingers, and on the soles of the feet. The tongue, however, is the part where it is most accurately to be observed: it is more easily distinguishable there than anywhere else, and its nature and structure are most evidently seen there.

Its colour in the Europeans is white; but in the negroes and other black nations it is black; in the tawny it is yellowish: the skin itself in both is white; and the blackness and yellowness depend altogether on the colour of this membrane.

The uses of the corpus reticulare are to preserve the structure of the other parts of the integuments, and keep them in their determinate form and situation. Its apertures give passage to the hairs and sweat through the papillæ and excretory ducts of the skin: it retains these in a certain and determinate order, that they cannot be removed out of their places, and has some share in preserving the softness of the papillæ, which renders them fit for the sense of feeling. See ANATOMY, n° 83.

RETICULUM, is a Latin word, signifying a *little* or *casting net*. It was applied by the Romans to a particular mode of constructing their buildings. In the city of Salino (see SALINO) are still to be seen remains of some walls, evidently of Roman origin from the *reticulum*. This structure consists of small pieces of baked earth cut lozengewise, and disposed with great regularity on the angles, so as to exhibit to the eye the appearance of cut diamonds; and was called *reticular*, from its resemblance to fishing-nets. The Romans always concealed it under a regular coating of other matter; and Mr Houel informs us, that this was the only specimen of it which he saw in all his travels through Sicily, Malta, and Lipari. It appears to be the remains of some baths, which

(A) The French convention, whose principles are equally new, daring, and destructive of all that is decent or of good report, have decided this question in a very summary way, by decreeing death to be an eternal sleep; a decree equally absurd in itself and fatal in its consequences. Since this article went to the press, however, we have learned, from the most respectable authority, that wild and absurd as the opinion is, it has been industriously propagated in this country, and that in some places it has gained ground. The consequences of this, were it to become general, must indeed be baneful beyond all conception; and we shall afterwards take occasion to expose the opinion and its nefarious consequences at greater length than it is now possible to do in this place. See THEOLOGY.

Retimo || Retirement

which have been built for the convenience of sea-bathing.

RETIMO, the ancient *Rhitymnia* of Stephen the geographer, and called by Ptolemy *Rhitymna*, is a fine city, lying at one end of a rich and fertile plain, on the north coast of the island of Candia. It is but a small place, containing scarce 6000 inhabitants; but it is a bishop's see, and the harbour is defended by a citadel, where a bashaw resides. It was taken by the Turks in 1647, and has been in their hands ever since. It is about 45 miles from Candia. E. Long. 24. 45. N. Lat. 35. 22.

The citadel, which stands on a rock jutting out into the sea, would be sufficient for the defence of the city, were it not situated at the foot of an high hill, from which it might be cannonaded with great advantage. The harbour is now almost filled with sand, and is no longer accessible to shipping; nor do the Turks in any measure oppose the ravages of time, but behold with a careless eye the most valuable works in a state of ruin. The French had formerly a vice-consul at Retimo, to which ships used to repair for cargoes of oil; but they have been long unable to get into the harbour: to repair which, however, and to revive the commerce of Retimo, would be a most useful attempt. The plains around the city abound in a variety of productions. Great quantities of oil, cotton, saffron, and wax, are produced here; and they would be produced in still greater quantities if the inhabitants could export their commodities. The gardens of Retimo bear the best fruits in the island; excellent pomegranates, almonds, pistacho nuts, and oranges. The apricot-tree, bearing the michmich, the juice of which is so delicious, and its flavour so exquisite, is found here. It is a kind of early peach, but smaller and more juicy than those of France.

RETINA, in anatomy, the expansion of the optic nerves over the bottom of the eye, where the sense of vision is first received. See ANATOMY, nº 142. and OPTICS *(Index)* at *Eye* and *Vision*.

RETINUE, the attendants or followers of a prince or person of quality, chiefly in a journey.

RETIRADE, in fortification, a kind of retrenchment made in the body of a bastion, or other work, which is to be disputed, inch by inch, after the defences are dismantled. It usually consists of two faces, which make a re-entering angle. When a breach is made in a bastion, the enemy may also make a retirade or new fortification behind it.

RETIREMENT, means a private way of life or a secret habitation. "Few (says an elegant writer) are able to bear solitude; and though retirement is the ostensible object of the greater part, yet, when they are enabled by success to retire, they feel themselves unhappy. Peculiar powers and elegance of mind are necessary to enable us to draw all our resources from ourselves. In a remote and solitary village the mind must be internally active in a great degree, or it will be miserable for want of employment. But in great and populous cities, even while it is passive, it will be constantly amused. It is impossible to walk the streets without finding the attention powerfully solicited on every side. No exertion is necessary. Objects pour themselves into the senses, and it would be difficult to prevent their admittance. But, in retirement, there must be a spirit of philosophy and a store of learning, or else the fancied scenes of bliss will vanish like the colours of the rainbow. Poor Cowley might be said to be melancholy mad. He languished for solitude, and wished to hide himself in the wilds of America. But, alas! he was not able to support the solitude of a country village within a few miles of the metropolis!

Dr Knox.

Retort, Retracts.

"With a virtuous and cheerful family, with a few faithful and good-humoured friends, with a well-selected collection of elegant books, and with a competency, one may enjoy comforts even in the deserted village, which the city, with all its diversions, cannot supply."

RETORT, in chemistry, an oblong or globular vessel with its neck bent, proper for distillation. See CHEMISTRY, nº 576.

In the fifth volume of the Transactions of the London Society for the Encouragement of Arts, p. 96. we find a paper containing a method for preventing stone retorts from breaking; or stopping them when cracked, during any chemical operation, without losing any of the contained subject. "I have always found it necessary (says the writer) to use a previous coating for filling up the interstices of the earth or stone, which is made by dissolving two ounces of borax in a pint of boiling water, and adding to the solution as much slaked lime as will make it into a thin paste; this, with a common painter's brush, may be spread over several retorts, which when dry are then ready for the proper preserving coating. The intention of this first coating is, that the substances thus spread over, readily vitrifying in the fire, prevent any of the distilling matters from pervading the retort, but does in nowise prevent it from cracking.

"Whenever I want to use any of the above coated retorts; after I have charged them with the substance to be distilled, I prepare a thin paste, made with common linseed oil and slaked lime well mixed, and perfectly plastic, that it may be easily spread: with this let the retorts be covered all over except that part of the neck which is to be inserted into the receiver; this is readily done with a painter's brush: the coating will be sufficiently dry in a day or two, and they will then be fit for use. With this coating I have for several years worked my stone retorts, without any danger of their breaking, and have frequently used the same retort four or five times; observing particularly to coat it over with the last mentioned composition every time it is charged with fresh materials: Before I made use of this expedient, it was an even chance, in conducting operations in stone and earthen retorts, whether they did not crack every time; by which means great loss has been sustained. If at any time during the operation the retorts should crack, spread some of the oil composition thick on the part, and sprinkle some powder of slacked lime on it, and it immediately stops the fissure, and prevents any of the distilling matter from pervading; even that subtile penetrating substance the solid phosphorus will not penetrate through it. It may be applied without any danger, even when the retort is red hot; and when it is made a little stiffer, is more proper for luting vessels than any other I ever have tried; because if properly mixed it will never crack, nor will it indurate so as to endanger the breaking the necks of the vessels when taken off."

RETRACTS, among horsemen, pricks in a horse's feet, arising from the fault of the farrier in driving nails

Retreat || Return.

that are weak, or in driving them ill-pointed, or otherwise amiss.

RETREAT, in a military sense. An army or body of men are said to retreat when they turn their backs upon the enemy, or are retiring from the ground they occupied: hence every march in withdrawing from the enemy is called a *retreat*.

That which is done in sight of an active enemy, who pursues with a superior force, is the most important part of the subject; and is, with reason, looked upon as the glory of the profession. It is a manœuvre the most delicate, and the properest to display the prudence, genius, courage, and address, of an officer who commands: the historians of all ages testify it; and historians have never been so lavish of eulogiums as on the subject of the brilliant retreats of our heroes. If it is important, it is no less difficult to regulate, on account of the variety of circumstances, each of which demands different principles, and an almost endless detail. Hence a good retreat is esteemed, by experienced officers, the masterpiece of a general. He should therefore be well acquainted with the situation of the country through which he intends to make it, and careful that nothing is omitted to make it safe and honourable. See WAR.

RETREAT, is also a beat of the drum, at the firing of the evening gun; at which the drum-major, with all the drums of the battalion, except such as are upon duty, beats from the camp-colours on the right to those on the left, on the parade of encampment: the drums of all the guards beat also; the trumpets at the same time sounding at the head of their respective troops. This is to warn the soldiers to forbear firing, and the centinels to challenge, till the break of day that the reveille is beat. The retreat is likewise called *setting the watch*.

RETRENCHMENT literally signifies something cut off or taken from a thing; in which sense it is the same with subtraction, diminution, &c.

RETRENCHMENT, in the art of war, any kind of work raised to cover a post, and fortify it against the enemy, such as fascines loaded with earth, gambions, barrels of earth, sand-bags, and generally all things that can cover the men and stop the enemy. See FORTIFICATION and WAR.

RETRIBUTION, a handsome present, gratuity, or acknowledgment, given instead of a formal salary or hire, to persons employed in affairs that do not so immediately fall under estimation, nor within the ordinary commerce in money.

RETROMINGENTS, in natural history, a class or division of animals, whose characteristic is, that they stale or make water backwards, both male and female.

RETURN (*returna* or *retorna*), in law, is used in divers senses. 1. Return of writs by sheriffs and bailiffs is a certificate made by them to the court, of what they have done in relation to the execution of the writ directed to them. This is wrote on the back of the writ by the officer, who thus sends the writ back to the court from whence it issued, in order that it may be filed. 2. Return of a commission, is a certificate or answer sent to the court from whence the commission issues, concerning what has been done by the commissioners. 3. Returns, or days in bank, are certain days in each term, appointed for the return of writs, &c. Thus Hillary term has four returns, viz. in the king's-bench, on the day next after the octave, or eighth day after Hillary day: on the day next after the fifteenth day from St Hillary; on the day after purification; and on the next after the octave of the purification. In the common pleas, in eight days of St Hillary: from the day of St Hillary, in fifteen days: on the day after the purification: in eight days of the purification. Easter term has five returns, viz. in the king's-bench, on the day next after the fifteenth day from Easter: on the day next after the three weeks from Easter: on the day next after one month from Easter: on the day next after five weeks from Easter: and on the day next after the day following ascension-day. In the common pleas, in fifteen days from the feast of Easter: in three weeks from the feast of Easter: in one month from Easter day: in five weeks from Easter day: on the day after the ascension-day. Trinity term has four returns, viz. on the day following the second day after Trinity: on the day following the eighth day after Trinity: on the day next after the fifteenth day from Trinity: on the day next after three weeks from Trinity. In the common pleas, on the day after Trinity: in eight days of Trinity: in fifteen days from Trinity: in three weeks from Trinity. Michaelmas term has six returns, viz. on the day next after three weeks from St Michael: on the day next after one month of St Michael: on the day following the second day after All-souls: on the day next after the second day after St Martin: on the day following the octave of St Martin: on the day next after fifteen days of St Martin. In the common pleas, in three weeks from St Michael: in one month from St Michael: on the day after All-souls: on the day after St Martin: on the octave of St Martin: in fifteen days from St Martin. It is to be observed, that, as in the king's-bench, all returns are to be made on some particular day of the week in each term, care must be taken not to make the writs out of that court returnable on a non-judicial day; such as Sunday, and All-saints, in Michaelmas term, the purification in Hillary, the ascension in Easter, and Midsummer-day, except it should fall on the first day of Trinity term.

Return || Retzia.

RETURNS, in a military sense, are of various sorts, but all tending to explain the state of the army, regiment, or company; namely, how many capable of doing duty, on duty, sick in quarters, barracks, infirmary, or hospital; prisoners, absent with or without leave; total effective; wanting to complete the establishment, &c.

RETUSARI, an island in Russia, is a long slip of land, or rather sand, through the middle of which runs a ridge of granite. It is 20 miles from Petersburg by water, four from the shore of Ingria, and nine from the coast of Carelia. It is about 10 miles in circumference, and was overspread with firs and pines when Peter first conquered it from the Swedes. It contains at present about 30,000 inhabitants, including the sailors and garrison, the former of whom amount to about 12,000, the latter to 1500 men. The island affords a small quantity of pasture, produces vegetables, and a few fruits, such as apples, currants, gooseberries, and strawberries, which thrive in this northern climate.

Coxe's Travels into Russia.

RETZ (Cardinal de). See GONDI.

RETZIA, in botany; a genus of the monogynia order, belonging to the pentandria class of plants, and to

to the 29th natural order, *Campanaceæ*. The capsule is bilocular, the corolla cylindrical, and villous without; the stigma bifid.

REUTLINGEN, a handsome, free, and imperial town of Germany, in the circle of Suabia, and duchy of Wirtemberg; seated in a plain on the river Eschez, near the Neckar, adorned with handsome public buildings, and has a well frequented college. E. Long. 9. 10. N. Lat. 48. 31.

REVE, Reeve, or *Greve*, the bailiff of a franchise, or manor, thus called, especially in the west of England. Hence shire-reeve, sheriff, port-greve, &c.

REVEILLE, a beat of drum about break of day, to give notice that it is time for the soldiers to arise, and that the sentries are to forbear challenging.

REVEL, a port town of Livonia, situated at the south entrance of the gulph of Finland, partly in a plain and partly on a mountain; 133 miles south-west of Petersburg, and 85 south-east of Abo. It is a place of great trade, and holds two fairs yearly, which are visited by merchants from all countries, but particularly by those of England and Holland. It is a strong and a rich place, with a capital harbour. It is surrounded with high walls and deep ditches, and defended by a castle and stout bastions. It was confirmed to the Swedes at the peace of Oliva, conquered by Peter the Great in 1710, and ceded to Russia in 1721. The conquest of it was again attempted by the Swedes in 1790. The duke of Sudermania, with the Swedish fleet, attempted to carry the harbour; but after an obstinate engagement with the Russian fleet, he was obliged to give it up; but it was but for a very short while. He retired about 10 leagues from the harbour, to repair the damage his fleet had sustained, and to prepare for a second attack before any relief could be afforded to the Russian fleet. As soon as he had refitted, he sailed for the harbour, at a league distant from which the Russian fleet was discovered, ready to dispute with the Swedes the entrance. Upon a council being held by the Duke, it was resolved to attack the Russians; and the signals being given, the fleet bore down for the attack, which was maintained for near six hours with the utmost fury: at length the Swedes broke the Russian line, which threw them into much confusion; when the Swedes, taking the advantage of the general confusion into which the Russians were thrown, followed them with their whole force into the harbour, where the conflict and carnage were dreadful on both sides, though the Swedes certainly had the worst of it; at the same time that their skill and bravery is indisputable.

This valuable place was again confirmed to Russia by the peace. The government of Revel or Esthonia is one of the divisions of the Russian empire, containing five districts. 1. Revel, on the Baltic sea. 2. Baltic-port, about 40 versts westward from Revel. 3. Habsal, or Hapsal, a maritime town. 4. Weissenstein, on the rivulet Saida, about 80 versts from Revel. 5. Wesenberg, about 120 versts from Revel, at about an equal distance from that town and Narva.

REVELATION, the act of revealing, or making a thing public that was before unknown; it is also used for the discoveries made by God to his prophets, and by them to the world; and more particularly for the books of the Old and New Testament. See Bible, Christianity, Miracle, Religion, and Theology.

The principal tests of the truth of any revelation, are the tendency of its practical doctrines; its consistency with itself, and with the known attributes of God; and some satisfactory evidence that it cannot have been derived from a human source.

Before any man can receive a written book as a revelation from God, he must be convinced that God exists, and that he is possessed of almighty power, infinite wisdom, and perfect justice. Now should a book teaching absurd or immoral doctrines (as many chapters of the Koran do, and as all the traditionary systems of Paganism did), pretend to be revealed by a God of wisdom and justice, we may safely reject its pretensions without farther examination than what is necessary to satisfy us that we have not misunderstood its doctrine. Should a book claiming this high origin, enjoin in one part of it, and forbid in another, the same thing to be done under the same circumstances, we may reject it with contempt and indignation; because a being of infinite wisdom can never act capriciously or absurdly. Still, however, as it is impossible for us to know how far the powers of men may reach in the investigation or discovery of useful truth, some farther evidence is necessary to prove a doctrine of divine origin, than its mere consistency with itself, and with the principles of morality; and this evidence can be nothing but the power of working miracles exhibited by him by whom it was originally revealed. In every revelation confirmed by this evidence, many doctrines are to be looked for which human reason cannot fully comprehend; and these are to be believed on the testimony of God, and suffered to produce their practical consequences. At this kind of belief the shallow infidel may smile contemptuously; but it has place in arts and sciences as well as in religion. Whoever avails himself of the demonstrations of Newton, Bernoulli, and others, respecting the resistance of fluids, and applies their conclusions to the art of ship-building, is as implicit a believer, if he understand not the principles of fluxions, as any Christian; and yet no man will say that his faith is not productive of important practical consequences. He believes, however, in man, while the Christian believes in God; and therefore he cannot pretend that his faith rests on a surer foundation.

Mr Locke, in laying down the distinct provinces of reason and faith, observes, 1. That the same truths may be discovered by revelation which are discoverable to us by reason. 2. That no revelation can be admitted against the clear evidence of reason. 3. That there are many things of which we have but imperfect notions, or none at all; and others, of whose past, present, or future existence, by the natural use of our faculties we cannot have the least knowledge: and these, being beyond the discovery of our faculties, and above reason, when revealed, become the proper object of our faith. He then adds, that our reason is not injured or disturbed, but assisted and improved, by new discoveries of truth coming from the fountain of knowledge. Whatever God has revealed is certainly true; but whether it be a divine revelation or not, reason must judge, which can never permit the mind to reject a greater evidence to embrace what is less evident.

dent. There can be no evidence that any traditional revelation is of divine original, in the words we receive it, and the ſenſe we underſtand it, ſo clear and ſo certain as that of the principles of reaſon: and, therefore, nothing that is contrary to the clear and ſelf-evident dictates of reaſon, has a right to be urged or aſſented to as a matter of faith, wherein reaſon has nothing to do.

Revelation *of St John*. See Apocalypse.

REVELS, entertainments of dancing, maſking, acting comedies, farces, &c. anciently very frequent in the inns of court and in noblemens houſes, but now much diſuſed. The officer who has the direction of the revels at court is called the *Master of the Revels*.

REVENGE, means the return of injury for injury, and differs materially from that ſudden reſentment which riſes in the mind immediately on being injured; which, ſo far from being culpable when reſtrained within due bounds, is abſolutely neceſſary for ſelf-preſervation. Revenge, on the contrary, is a cool and deliberate wickedneſs, and is often executed years after the offence was given; and the deſire of it is generally the effect of littleneſs, weakneſs, and vice; while, to do right, and to ſuffer wrong, is an argument of a great ſoul, that ſcorns to ſtoop to ſuggeſted revenges.

Revenge is but a frailty incident
To craz'd and ſickly minds; the poor content
Of little ſouls, unable to ſurmount
An injury, too weak to bear affront. *Dryden.*

Revenge is generally the concomitant of ſavage minds, of minds implacable, and capable of the moſt horrid barbarities; unable to ſet any limits to their diſpleaſure, they can confine their anger within no bounds of reaſon.

Cruel revenge, which ſtill we find
The weakeſt frailty of a feeble mind.
Degenerous paſſion, and for man too baſe,
It ſeats its empire in the ſavage race.
Juvenal.

The inſtitution of law prevents the execution of private revenge, and the growth of civilization ſhows its impropriety. Though in modern times a ſpecies of revenge is ſanctioned by what is called the law of honour, which evades the law of the land indeed, but which is equally mean and diſgraceful as the other kinds, and is of conſequences equally baneful. See Anger, Duelling, and Resentment.

REVENUE, the annual income a perſon receives from the rent of his lands, houſes, intereſt of money in the ſtocks, &c.

Royal Revenue, that which the Britiſh conſtitution hath veſted in the royal perſon, in order to ſupport his dignity and maintain his power; being a portion which each ſubject contributes of his property, in order to ſecure the remainder. This revenue is either *ordinary* or *extraordinary*.

I. The king's *ordinary* revenue is ſuch as has either ſubſiſted time out of mind in the crown; or elſe has been granted by parliament, by way of purchaſe or exchange for ſuch of the king's inherent hereditary revenues as were found inconvenient to the ſubject.—In ſaying that it has ſubſiſted time out of mind in the crown, we do not mean that the king is at preſent in the actual poſſeſſion of the whole of his revenue. Much (nay the greateſt part) of it is at this day in the hands of ſubjects; to whom it has been granted out from time to time by the kings of England: which has rendered the crown in ſome meaſure dependent on the people for its ordinary ſupport and ſubſiſtence. So that we muſt be obliged to recount, as part of the royal revenue, what lords of manors and other ſubjects frequently look upon to be their own abſolute rights; becauſe they and their anceſtors are and have been veſted in them for ages, though in reality originally derived from the grants of our ancient princes.

Revenue. Blackſt. Comment.

1. The firſt of the king's ordinary revenues, which may be taken notice of, is of an eccleſiaſtical kind (as are alſo the three ſucceeding ones), viz. the cuſtody of the temporalities of biſhops. See Temporalities.

2. The king is entitled to a corody, as the law calls it, out of every biſhopric; that is, to ſend one of his chaplains to be maintained by the biſhop, or to have a penſion allowed him till the biſhop promotes him to a benefice. This is alſo in the nature of an acknowledgement to the king, as founder of the ſee, ſince he had formerly the ſame corody or penſion from every abbey or priory of royal foundation. It is ſuppoſed to be now fallen into total diſuſe; though Sir Matthew Hale ſays, that it is due of common right, and that no preſcription will diſcharge it.

3. The king alſo is entitled to all the tithes ariſing in extraparochial places: though perhaps it may be doubted how far this article, as well as the laſt, can be properly reckoned a part of the king's own royal revenue; ſince a corody ſupports only his chaplains, and theſe extraparochial tithes are held under an implied truſt that the king will diſtribute them for the good of the clergy in general.

4. The next branch conſiſts in the firſt-fruits and tenths of all ſpiritual preferments in the kingdom. See Tenths.

5. The next branch of the king's ordinary revenue (which, as well as the ſubſequent branches, is of a lay or temporal nature) conſiſts in the rents and profits of the demeſne lands of the crown. Theſe demeſne lands, *terræ dominicales regis*, being either the ſhare reſerved to the crown at the original diſtribution of landed property, or ſuch as came to it afterwards by forfeitures or other means, were anciently very large and extenſive; comprising divers manors, honours, and lordſhips; the tenants of which had very peculiar privileges, when we ſpeak of the tenure in ancient demeſne. At preſent they are contracted within a very narrow compaſs, having been almoſt entirely granted away to private ſubjects. This has occaſioned the parliament frequently to interpoſe; and particularly after King William III. had greatly impoveriſhed the crown, an act paſſed, whereby all future grants or leaſes from the crown for any longer term than 31 years or three lives, are declared to be void; except with regard to houſes, which may be granted for 50 years. And no reverſionary leaſe can be made, ſo as to exceed, together with the eſtate in being, the ſame term of three lives or 31 years; that is, when there is a ſubſiſting leaſe, of which there are 20 years ſtill to come, the king cannot grant a future intereſt, to commence after the expiration of the former, for any longer term than 11 years.

years. The tenant must also be made liable to be punished for committing waste; and the usual rent must be reserved, or, where there has usually been no rent, one-third of the clear yearly value. The misfortune is, that this act was made too late, after almost every valuable possession of the crown had been granted away for ever, or else upon very long leases; but may be of benefit to posterity, when those leases come to expire.

6. Hither might have been referred the advantages which were used to arise to the king from the profits of his military tenures, to which most lands in the kingdom were subject, till the statute 12 Car. II. c. 24. which in great measure abolished them all. Hither also might have been referred the profitable prerogative of purveyance and pre-emption: which was a right enjoyed by the crown of buying up provisions and other necessaries, by the intervention of the king's purveyors, for the use of his royal household, at an appraised valuation, in preference to all others, and even without consent of the owner: and also of forcibly impressing the carriages and horses of the subject, to do the king's business on the public roads, in the conveyance of timber, baggage, and the like, however inconvenient to the proprietor, upon paying him a settled price. A prerogative which prevailed pretty generally throughout Europe during the scarcity of gold and silver, and the high valuation of money consequential thereupon. In those early times, the king's household (as well as those of inferior lords) were supported by specific renders of corn, and other victuals, from the tenants of the respective demesnes; and there was also a continual market kept at the palace-gate to furnish viands for the royal use. And this answered all purposes, in those ages of simplicity, so long as the king's court continued in any certain place. But when it removed from one part of the kingdom to another (as was formerly very frequently done), it was found necessary to send purveyors beforehand, to get together a sufficient quantity of provisions and other necessaries for the household: and, lest the unusual demand should raise them to an exorbitant price, the powers beforementioned were vested in these purveyors; who in process of time very greatly abused their authority, and became a great oppression to the subject, though of little advantage to the crown; ready money in open market (when the royal residence was more permanent, and specie began to be plenty) being found upon experience to be the best proveditor of any. Wherefore, by degrees, the powers of purveyance have declined, in foreign countries as well as our own: and particularly were abolished in Sweden by Gustavus Adolphus, towards the beginning of the last century. And, with us in England, having fallen into disuse during the suspension of monarchy, King Charles, at his restoration, consented, by the same statute, to resign entirely those branches of his revenue and power: and the parliament, in part of recompense, settled on him, his heirs, and successors, for ever, the hereditary excise of 15d. per barrel on all beer and ale sold in the kingdom, and a proportionable sum for certain other liquors. So that this hereditary excise now forms the sixth branch of his majesty's ordinary revenue.

7. A seventh branch might also be computed to have arisen from wine-licences; or the rents payable to the crown by such persons as are licensed to sell wine by retail throughout Britain, except in a few privileged places. These were first settled on the crown by the statute 12 Car. II. c. 25. and, together with the hereditary excise, made up the equivalent in value for the loss sustained by the prerogative in the abolition of the military tenures, and the right of pre-emption and purveyance: but this revenue was abolished by the statute 30 Geo. II. c. 19. and an annual sum of upwards of L. 7000 *per annum*, issuing out of the new stamp-duties imposed on wine-licences, was settled on the crown in its stead.

8. An eighth branch of the king's ordinary revenue is usually reckoned to consist in the profits arising from his forests. See FOREST. These consist principally in the amercements or fines levied for offences against the forest-laws. But as few, if any, courts of this kind for levying amercements have been held since 1632, 8 Char. I. and as, from the accounts given of the proceedings in that court by our histories and law-books, nobody would wish to see them again revived, it is needless to pursue this inquiry any farther.

9. The profits arising from the king's ordinary courts of justice make a ninth branch of his revenue. And these consist not only in fines imposed upon offenders, forfeitures of recognizances, and amercements levied upon defaulters; but also in certain fees due to the crown in a variety of legal matters, as, for setting the great seal to charters, original writs, and other forensic proceedings, and for permitting fines to be levied of lands in order to bar entails, or otherwise to insure their title. As none of these can be done without the immediate intervention of the king, by himself or his officers, the law allows him certain perquisites and profits, as a recompense for the trouble he undertakes for the public. These, in process of time, have been almost all granted out to private persons, or else appropriated to certain particular uses: so that, though our law proceedings are still loaded with their payment, very little of them is now returned into the king's exchequer; for a part of whose royal maintenance they were originally intended. All future grants of them, however, by the statute 1 Ann. st. 2. c. 7. are to endure for no longer time than the prince's life who grants them.

10. A tenth branch of the king's ordinary revenue, said to be grounded on the consideration of his guarding and protecting the seas from pirates and robbers, is the right to *royal fish*, which are whale and sturgeon: and these, when either thrown ashore, or caught near the coasts, are the property of the king, on account of their superior excellence. Indeed, our ancestors seem to have entertained a very high notion of the importance of this right; it being the prerogative of the kings of Denmark and the dukes of Normandy; and from one of these it was probably derived to our princes.

11. Another maritime revenue, and founded partly upon the same reason, is that of SHIPWRECKS. See WRECK.

12. A twelfth branch of the royal revenue, the right to mines, has its original from the king's prerogative of coinage, in order to supply him with materials; and there-

therefore those mines which are properly royal, and to which the king is entitled when found, are only those of silver and gold. See MINE.

13. To the same original may in part be referred the revenue of treasure-trove. See TREASURE-TROVE.

14. Waifs. See WAIF.

15. Estrays. See ESTRAY.

Besides the particular reasons, given in the different articles, why the king should have the several revenues of royal fish, shipwrecks, treasure-trove, waifs, and estrays, there is also one general reason which holds for them all; and that is, because they are *bona vacantia*, or goods in which no one else can claim a property. And, therefore, by the law of nature, they belonged to the first occupant or finder; and so continued under the imperial law. But, in settling the modern constitutions of most of the governments in Europe, it was thought proper (to prevent that strife and contention which the mere title of occupancy is apt to create and continue, and to provide for the support of public authority in a manner the least burdensome to individuals) that these rights should be annexed to the supreme power by the positive laws of the state. And so it came to pass, that, as Bracton expresses it, "hæc, "quæ nullius in bonis sunt, et olim fuerunt inventoris "de jure naturali, jam efficiuntur principis de jure gen-"tium."

16. The next branch of the king's ordinary revenue consists in forfeitures of lands and goods for offences; *bona confiscata*, as they are called by the civilians, because they belonged to the *fiscus* or imperial treasury; or, as our lawyers term them, *foris facta*, that is, such whereof the property is gone away or departed from the owner. The true reason and only substantial ground of any forfeiture for crimes, consist in this; that all property is derived from society, being one of those civil rights which are conferred upon individuals, in exchange for that degree of natural freedom which every man must sacrifice when he enters into social communities. If, therefore, a member of any national community violates the fundamental contract of his association, by transgressing the municipal law, he forfeits his right to such privileges as he claims by that contract; and the state may very justly resume that portion of property, or any part of it, which the laws have before assigned him. Hence, in every offence of an atrocious kind, the laws of England have exacted a total confiscation of the moveables or personal estate; and, in many cases, a perpetual, in others only a temporary, loss of the offender's immoveables or landed property; and have vested them both in the king, who is the person supposed to be offended, being the one visible magistrate in whom the majesty of the public resides. See FORFEITURE and DEODAND.

17. Another branch of the king's ordinary revenue arises from escheats of lands, which happen upon the defect of heirs to succeed to the inheritance; whereupon they in general revert to and vest in the king, who is esteemed, in the eye of the law, the original proprietor of all lands in the kingdom.

18. The last branch of the king's ordinary revenue, consists in the custody of idiots, from whence we shall be naturally led to consider also the custody of lunatics. See IDIOT and LUNATIC.

This may suffice for a short view of the king's *ordinary* revenue, or the proper patrimony of the crown; which was very large formerly, and capable of being increased to a magnitude truly formidable: for there are very few estates in the kingdom that have not, at some period or other since the Norman conquest, been vested in the hands of the king, by forfeiture, escheat, or otherwise. But, fortunately for the liberty of the subject, this hereditary landed revenue, by a series of improvident management, is sunk almost to nothing; and the casual profits, arising from the other branches of the *census regalis*, are likewise almost all of them alienated from the crown. In order to supply the deficiencies of which, we are now obliged to have recourse to new methods of raising money, unknown to our early ancestors; which methods constitute.

II. The king's *extraordinary* revenue. For, the public patrimony being got into the hands of private subjects, it is but reasonable that private contributions should supply the public service. Which, though it may perhaps fall harder upon some individuals, whose ancestors have had no share in the general plunder, than upon others, yet, taking the nation throughout, it amounts to nearly the same; provided the gain by the extraordinary should appear to be no greater than the loss by the ordinary revenue. And perhaps, if every gentleman in the kingdom was to be stripped of such of his lands as were formerly the property of the crown, was to be again subject to the inconveniences of purveyance and pre-emption, the oppression of forest-laws, and the slavery of feodal-tenures; and was to resign into the king's hands all his royal franchises of waifs, wrecks, estrays, treasure-trove, mines, deodands, forfeitures, and the like; he would find himself a greater loser than by paying his *quota* to such taxes as are necessary to the support of government. The thing, therefore, to be wished and aimed at in a land of liberty, is by no means the total abolition of taxes, which would draw after it very pernicious consequences, and the very supposition of which is the height of political absurdity. For as the true idea of government and magistracy will be found to consist in this, that some few men are deputed by many others to preside over public affairs, so that individuals may the better be enabled to attend their private concerns; it is necessary that those individuals should be bound to contribute a portion of their private gains, in order to support that government, and reward that magistracy, which protects them in the enjoyment of their respective properties. But the things to be aimed at are wisdom and moderation, not only in granting, but also in the method of raising, the necessary supplies; by contriving to do both in such a manner as may be most coducive to the national welfare, and at the same time most consistent with economy and the liberty of the subject; who, when properly taxed, contributes only, as was before observed, some part of his property in order to enjoy the rest.

These extaordinary grants are usually called by the synonymous names of *aids*, *subsidies*, and *supplies*; and are granted by the commons of Great Britain, in parliament assembled. See PARLIAMENT and TAX.

The clear nett produce of the several branches of the revenue, after all charges of collecting and management paid, amounted in the year 1786 to about L. 15,397,000 Sterling, while the expenditure was found

found to be about L. 14,477,000. How these immense sums are appropriated, is next to be considered. And this is, first and principally, to the payment of the interest of the national debt. See *National Debt* and Funds.

The respective produces of the several taxes were originally separate and distinct funds; being securities for the sums advanced on each several tax, and for them only. But at last it became necessary, in order to avoid confusion, as they multiplied yearly, to reduce the number of these separate funds, by uniting and blending them together; superadding the faith of parliament for the general security of the whole. So that there are now only three capital funds of any account, the *aggregate* fund, and the *general* fund, so called from such union and addition; and the *South-Sea* fund, being the produce of the taxes appropriated to pay the interest of such part of the national debt as was advanced by that company and its annuitants. Whereby the separate funds, which were thus united, are become mutual securities for each other; and the whole produce of them, thus aggregated, liable to pay such interest or annuities as were formerly charged upon each distinct fund: the faith of the legislature being moreover engaged to supply any casual deficiencies.

The customs, excises, and other taxes, which are to support these funds, depending on contingencies, upon exports, imports, and consumptions, must necessarily be of a very uncertain amount; but they have always been considerably more than was sufficient to answer the charge upon them. The surplusses, therefore, of the three great national funds, the aggregate, general, and South-Sea funds, over and above the interest and annuities charged upon them, are directed by statute 3 Geo. I. c. 7. to be carried together, and to attend the disposition of parliament; and are usually denominated the *sinking fund*, because originally destined to sink and lower the national debt. To this have been since added many other entire duties, granted in subsequent years; and the annual interest of the sums borrowed on their respective credits is charged on, and payable out of, the produce of the sinking fund. However, the nett surplusses and savings, after all deductions paid, amount annually to a very considerable sum. For as the interest on the national debt has been at several times reduced (by the consent of the proprietors, who had their option either to lower their interest or be paid their principal), the savings from the appropriated revenues must needs be extremely large.

But, before any part of the aggregate fund (the surplusses whereof are one of the chief ingredients that form the sinking fund) can be applied to diminish the principal of the public debt, it stands mortgaged by parliament to raise an annual sum for the maintenance of the king's household and the civil list. For this purpose, in the late reigns, the produce of certain branches of the excise and customs, the post-office, the duty on wine-licences, the revenues of the remaining crown-lands, the profits arising from courts of justice, (which articles include all the hereditary revenues of the crown), and also a clear annuity of L. 120,000 in money, were settled on the king for life, for the support of his majesty's household, and the honour and dignity of the crown. And, as the amount of these several branches was uncertain, (though in the last reign they were computed to have sometimes raised almost a million), if they did not arise annually to L. 800,000, the parliament engaged to make up the deficiency. But his present majesty having, soon after his accession, spontaneously signified his consent that his own hereditary revenues might be so disposed of as might best conduce to the utility and satisfaction of the public, and having graciously accepted a limited sum, the said hereditary and other revenues are now carried into, and made a part of, the aggregate fund; and the aggregate fund is charged with the payment of the whole annuity to the crown. The limited annuity accepted by his present majesty was at first L. 800,000, but it has been since augmented to L. 900,000. The expences themselves, being put under the same care and management as the other branches of the public patrimony, produce more, and are better collected than heretofore; and the public is a gainer of upwards of L. 100,000 *per annum* by this disinterested bounty of his majesty.

The sinking fund, though long talked of as the last resource of the nation, proved very inadequate to the purpose for which it was established. Ministers found pretences for diverting it into other channels; and the diminution of the national debt proceeded slowly during the intervals of peace, whilst each succeeding war increased it with great rapidity. To remedy this evil, and restore the public credit, to which the late war had given a considerable shock, Mr Pitt conceived a plan for diminishing the debt by a fund, which should be rendered unalienable to any other purpose. In the session 1786, he moved that the annual surplus of the revenue above the expenditure should be raised, by additional taxes, from L. 900,000 to one million Sterling, and that certain commissioners should be vested with the full power of disposing of this sum in the purchase of stock (see Funds), for the public, in their own names. These commissioners should receive the annual million by quarterly payments of L. 250,000, to be issued out of the exchequer before any other money, except the interest of the national debt itself; by these provisions, the fund would be secured, and no deficiencies in the national revenues could affect it, but such must be separately provided for by parliament.

The accumulated compound interest on a million yearly, together with the annuities that would fall into that fund, would, he said, in 28 years amount to such a sum as would leave a surplus of four millions annually, to be applied, if necessary, to the exigencies of the state. In appointing the commissioners, he should, he said, endeavour to choose persons of such weight and character as corresponded with the importance of the commission they were to execute. The speaker of the house of commons, the chancellor of the exchequer, the master of the rolls, the governor and deputy governor of the bank of England, and the accountant-general of the high court of chancery, were persons who, from their several situations, he should think highly proper to be of the number.

To the principle of this bill no objection was made, though several specious but ill-founded ones were urged against the sufficiency of the mode which the chancellor of the exchequer had adopted for the accomplishment of so great and so desirable an end. He had made it a clause in his bill, that the accumulating million should never be applied but to the purchase of stock. To this clause Mr Fox objected, and moved that the commis-

ſioners therein named ſhould be impowered to accept ſo much of any future loan as they ſhould have caſh belonging to the public to pay for. This, he ſaid, would relieve that diſtreſs the country would otherwiſe be under, when, on account of a war, it might be neceſſary to raiſe a new loan: whenever that ſhould be the caſe, his opinion was, that the miniſter ſhould not only raiſe taxes ſufficiently productive to pay the intereſt of the loan, but alſo ſufficient to make good to the ſinking fund whatſoever had been taken from it.

If, therefore, for inſtance, at any future period a loan of ſix millions was propoſed, and there was at that time one million in the hands of the commiſſioners, in ſuch caſe they ſhould take a million of the loan, and the *bonus* or *douceur* thereupon ſhould be received by them for the public. Thus government would only have five millions to borrow inſtead of ſix; and from ſuch a mode of proceeding, he ſaid, it was evident great benefit would ariſe to the public.

This clauſe was received by Mr Pitt with the ſtrongeſt marks of approbation, as was likewiſe another, moved by Mr Pulteney, enabling the commiſſioners named in the bill to continue purchaſing ſtock for the public when it is above par, unleſs otherwiſe directed by parliament. With theſe additional clauſes the bill was read a third time on the 15th of May, and carried up to the Lords, where it alſo paſſed without meeting with any material oppoſition, and afterwards received the royal aſſent.

The operation of this bill ſurpaſſed perhaps the miniſter's moſt ſanguine expectation. The fund was ably managed, and judiciouſly applied; and in 1793 the commiſſioners had extinguiſhed ſome millions of the public debt. The war, however, into which the nation was that year involved, and of which there is yet no certain proſpect of a near end, has made it neceſſary to borrow additional ſums, ſo large, that many years of peace muſt elapſe before the operation of the fund can contribute ſenſibly to the relief of the people. The clear produce of the taxes raiſed on the people of this country was, in the year 1792, very near L. 17,000,000; and it muſt henceforth, from the accumulation of the debt, and the enormous expence of the preſent war, be neceſſarily rendered greater.

Revenue, in hunting, a fleſhy lump formed chiefly by a cluſter of whitiſh worms on the head of the deer, ſuppoſed to occaſion the caſting of their horns by gnawing them at the root.

REVERBERATION, in phyſics, the act of a body repelling or reflecting another after its impinging thereon.

Reverberation, in chemiſtry, denotes a kind of circulation of the flame by means of a reverberatory furnace.

REVERBERATORY, or *Reverberating Furnace*. See Chemistry-*Index* at *Furnace*, and Furnace.

REVEREND, a title of reſpect given to eccleſiaſtics.—The religious abroad are called *reverend fathers*, and abbeſſes, prioreſſes, &c. *reverend mothers*. In England, biſhops are *right reverend*, and archbiſhops *moſt reverend*. In France, before the Revolution, their biſhops, archbiſhops, and abbots, were all alike *moſt reverend*. In Scotland the clergy individually are *reverend*, a ſynod is *very reverend*, and the general aſſembly is *venerable*.

REVERIE, the ſame with delirium, raving, or diſtraction. It is uſed alſo for any ridiculous, extravagant imagination, action, or propoſition, a chimera, or viſion. But the moſt ordinary uſe of the word among Engliſh writers, is for a deep diſorderly muſing or meditation.

REVERSAL *of* Judgment, in law. A judgment may be falſified, reverſed, or voided, in the firſt place, *without a writ of error*, for matters foreign to or *dehors* the record, that is, not apparent upon the face of it; ſo that they cannot be aſſigned for error in the ſuperior court, which can only judge from what appears in the record itſelf; and therefore, if the whole record be not certified, or not truly certified, by the inferior court, the party injured thereby (in both civil and criminal caſes) may allege a diminution of the record, and cauſe it to be rectified. Thus, if any judgment whatever be given by perſons who had no good commiſſion to proceed againſt the perſon condemned, it is void; and may be falſified by ſhewing the ſpecial matter, without writ of error. As, where a commiſſion iſſues to A and B, and twelve others, or any two of them, of which A or B ſhall be one, to take and try indictments; and any of the other twelve proceed without the interpoſition or preſence of either A or B: in this caſe all proceedings, trials, convictions, and judgments, are void for want of a proper authority in the commiſſioners, and may be falſified upon bare inſpection, without the trouble of a writ of error; it being a high miſdemeanour in the judges ſo proceeding, and little (if any thing) ſhort of murder in them all, in caſe the perſon ſo attainted be executed and ſuffer death. So likewiſe if a man purchaſes land of another; and afterwards the vender is, either by outlawry or his own confeſſion, convicted and attainted of treaſon or felony previous to the ſale or alienation; whereby ſuch land becomes liable to forfeiture or eſcheat: now, upon any trial, the purchaſer is at liberty, without bringing any writ of error, to falſify not only the time of the felony or treaſon ſuppoſed, but the very point of the felony or treaſon itſelf; and is not concluded by the confeſſion or the outlawry of the vender, though the vender himſelf is concluded, and not ſuffered now to deny the fact, which he has by confeſſion or flight acknowledged. But if ſuch attainder of the vender was by verdict, on the oath of his peers, the alienee cannot be received to falſify or contradict the *fact* of the crime committed; though he is at liberty to prove a miſtake in *time*, or that the offence was committed after the alienation, and not before.

Secondly, a judgment may be reverſed, *by writ of error*, which lies from all inferior criminal juriſdictions to the court of king's-bench, and from the king's-bench to the houſe of peers; and may be brought for notorious miſtakes in the judgment or other parts of the record: as where a man is found guilty of perjury, and receives the judgment of felony, or for other leſs palpable errors; ſuch as any irregularity, omiſſion, or want of form in the proceſs of outlawry, or proclamations; the want of a proper addition to the defendant's name, according to the ſtatute of additions; for not properly naming the ſheriff or other officer of the court, or not duly deſcribing where his county-court was held: for laying an offence, committed in the time of the late king, to be done againſt the peace of the preſent; and for many other ſimilar cauſes, which (though allowed out of tenderneſs to life and liberty) are not much to the credit or advancement of the national juſtice.—Theſe writs of error, to reverſe judgments in caſe of mis-

misdemeanours, are not to be allowed of course, but on sufficient probable cause shown to the attorney-general; and then they are understood to be grantable of common right, and *ex debito justitiæ*. But writs of error to reverse attainders in capital cases are only allowed *ex gratia*; and not without express warrant under the king's sign-manual, or at least by the consent of the attorney-general. These therefore can rarely be brought by the party himself, especially where he is attainted for an offence against the state: but they may be brought by his heir or executor after his death, in more favourable times; which may be some consolation to his family. But the easier and more effectual way is,

Lastly, to reverse the attainder by act of parliament. This may be and hath been frequently done upon motives of compassion, or perhaps the zeal of the times, after a sudden revolution in the government, without examining too closely into the truth or validity of the errors assigned. And sometimes, though the crime be universally acknowledged and confessed, yet the merits of the criminal's family shall after his death obtain a restitution in blood, honours, and estate, or some or one of them, by act of parliament; which (so far as it extends) has all the effect of reversing the attainder, without casting any reflections upon the justice of the preceding sentence. See ATTAINDER.

The effect of falsifying or reversing an outlawry is, that the party shall be in the same plight as if he had appeared upon the *capias*: and, if it be before plea pleaded, he shall be put to plead to the indictment; if, after conviction, he shall receive the sentence of the law; for all the other proceedings, except only the process of outlawry for his non-appearance, remain good and effectual as before. But when judgment, pronounced upon conviction, is falsified or reversed, all former proceedings are absolutely set aside, and the party stands as if he had never been at all accused: restored in his credit, his capacity, his blood, and his estates: with regard to which last, though they be granted away by the crown, yet the owner may enter upon the grantee, with as little ceremony as he might enter upon a disseisor.—But he still remains liable to another prosecution for the same offence: for, the first being erroneous, he never was in jeopardy thereby.

REVERSE of a medal, coin, &c. denotes the second or back side, in opposition to the head or principal figure.

REVERSION, in Scots law. See LAW, N° clxix. 1—3.

REVERSION, in the law of England, has two significations; the one of which is an estate left, which continues during a particular estate in being; and the other is the returning of the land, &c. after the particular estate is ended; and it is further said to be an interest in lands, when the possession of it fails, or where the estate which was for a time parted with, returns to the granters, or their heirs. But, according to the usual definition of a reversion, it is the residue of an estate left in the granter, after a particular estate granted away ceases, continuing in the granter of such an estate.

The difference between a remainder and a reversion consists in this, that the remainder may belong to any man except the granter; whereas the reversion returns to him who conveyed the lands, &c.

Reversion.

In order to render the doctrine of reversions easy, we shall give the following table; which shows the present value of one pound, to be received at the end of any number of years not exceeding 40; discounting at the rate of 5, 4, and 3 *per cent.* compound interest.

Years.	Value at 5 per ct.	Value at 4 per ct.	Value at 3 per ct.
1	.9524	.9615	.9709
2	.9070	.9245	.9426
3	.8638	.8898	.9151
4	.8227	.8548	.8885
5	.7835	.8219	.8626
6	.7462	.7903	.8375
7	.7107	.7599	.8131
8	.6768	.7307	.7894
9	.6446	.7026	.7664
10	.6139	.6756	.7441
11	.5847	.6496	.7224
12	.5568	.6246	.7014
13	.5303	.6006	.6809
14	.5051	.5775	.6611
15	.4810	.5553	.6419
16	.4581	.5339	.6232
17	.4363	.5134	.6050
18	.4155	.4936	.5874
19	.3957	.4746	.5703
20	.3769	.4564	.5537
21	.3589	.4388	.5375
22	.3418	.4219	.5219
23	.3255	.4057	.5067
24	.3100	.3901	.4919
25	.2953	.3757	.4776
26	.2812	.3607	.4637
27	.2678	.3468	.4502
28	.2551	.3335	.4371
29	.2429	.3206	.4243
30	.2314	.3003	.4120
31	.2204	.2965	.4000
32	.2099	.2851	.3883
33	.1999	.2741	.3770
34	.1903	.2636	.3660
35	.1813	.2534	.3554
36	.1726	.2437	.3450
37	.1644	.2343	.3350
38	.1566	.2253	.3252
39	.1491	.2166	.3158
40	.1420	.2083	.3066

The use of the preceding table.—To find the present value of any sum to be received at the end of a given term of years, discounting at the rate of 3, 4, or 5 *per cent.* compound interest. Find by the above table the present value of 1l. to be received at the end of the given term; which multiply by the number of pounds proposed, (cutting off four figures from the product on account of the decimals), then the result will be the value sought: For example, the present value of 10,000l.

to

Revivification || Revision.

to be received 10 years hence, and the rate of interest 5 *per cent.* is equal to .6139×10,000 = 6139.0000 l. or 6139 l. Again, the present value of 10,000 l. due in ten years, the rate of interest being 3 *per cent.* is .7441×10,000 = 7441.

Revision of Series, in algebra, a kind of reversed operation of an infinite series. See SERIES.

REVIVIFICATION, in chemistry, a term generally applied to the distillation of quicksilver from cinnabar.

COMMISSION OF REVIEW, is a commission sometimes granted, in extraordinary cases, to revise the sentence of the court of delegates, when it is apprehended they have been led into a material error. This commission the king may grant, although the statutes 24 and 25 Hen. VIII. declare the sentence of the delegates definitive: because the pope, as supreme head by the canon law, used to grant such commission of review; and such authority as the pope heretofore exerted is now annexed to the crown by statutes 26 Hen. VIII. c. 1. and 1 Eliz. c. 1. But it is not matter of right, which the subject may demand *ex debito justitiæ*; but merely a matter of favour, and which therefore is often denied.

REVIEW, is the drawing out all or part of the army in line of battle, to be viewed by the king, or a general, that they may know the condition of the troops.

At all reviews, the officers should be properly armed, ready in their exercise, salute well, in good time, and with a good air; their uniform genteel, &c. The men should be clean and well dressed; their accoutrements well put on; very well sized in their ranks; the serjeants expert in their duty, drummers perfect in their beatings, and the fifers play correct. The manual exercise must be performed in good time, and with life; and the men carry their arms well; march, wheel, and form with exactness. All manœuvres must be performed with the utmost regularity, both in quick and slow time. The firings are generally 36 rounds; viz. by companies; by grand divisions; by sub-divisions; obliquely, advancing, retreating; by files; in the square; street firings, advancing and retreating; and lastly, a volley. The intention of a review is, to know the condition of the troops, see that they are complete and perform their exercise and evolutions well.

REVIEW is also applied to Literary Journals, which give a periodical view of the state of literature;—as the Monthly Review, the Critical Review, the British Critic, and Analytical Review, &c.

RE-UNION ISLAND, an island in the South Sea, discovered by the French on the 16th December 1773; lying, according to M. de Pages, in latitude 48° 21′, and longitude 66° 47″, the variation of the needle being 30° always towards north-west. The road and harbour are extremely good, and the latter from 16 to 8 fathoms deep at the very shore. The coast on each side is lofty, but green, with an abrupt descent, and swarms with a species of bustards. The penguins and sea-lions, which swarmed on the sands, were nowise alarmed at the approach of those who landed; from whence M. de Pages concluded that the country was wholly uninhabited. The soil produces a kind of grass, about five inches long, with a broad black leaf, and seemingly of a rich quality—but there was no vestige of a tree or human habitation. See *Travels round the World* by M. de Pages, Vol. III. chap. viii. and ix.

Revolution. Definition.

REVOLUTION, in politics, signifies a change in the constitution of a state; and is a word of different import from *revolt*, with which it is sometimes confounded. When a people withdraw their obedience from their governors for any particular reason, without overturning the government, or waging an offensive war against it, they are in a state of revolt; when they overturn the government and form a new one for themselves, they effect a *revolution*.

British revolution.

That which is termed *the revolution* in Britain is the change which, in 1688, took place in consequence of the forced abdication of king James II. when the Protestant succession was established, and the constitution restored to its primitive purity. Of this important transaction, which confirmed the rights and liberties of Britons, we have endeavoured to give an impartial account under another article (see BRITAIN, n° 281, &c). American.

Of the rise and progress of the American revolution, which is still fresh in the memory of our readers, a large detail is given under the article AMERICA: But there are two other revolutions yet depending, of which some account will be expected in this place. Polish.

The Polish revolution, which, in all its circumstances, was perhaps the least exceptionable of any in the records of history, we have already traced to the period when the amiable king, over-awed by the arms of Russia, was obliged to undo his patriotic work, and give his sanction to the restoration of the old and wretched government (see POLAND). Since that period, Kosciusko's army has been completely defeated, himself made a prisoner, Warsaw taken, and the whole kingdom subdued by the powers combined against it. What will be the consequence of this success may perhaps be conceived, but the rumours of the day are various. At one time we are told, that Poland is to be no longer an independent state, but to be divided among the three great powers which formerly wrested from it some of its most valuable provinces. At another time, we hear of the disinterested intention of the Empress, to restore the king to his original authority; although she has, in the mean time, driven him from his capital, where she herself exercises sovereign power. And a third report says, that Stanislaus is to retire with a large pension, and a Russian prince to step into his throne. The first of these rumours we think much more probable than the other two: especially as it seems confirmed by the following letter sent from Grodno, on the 18th of January, by the unfortunate king to the British ambassador.

"MY DEAR GARDINER—The characters with which you and I have been invested seem to be now almost at an end. I do not expect to see you again, but it is of importance to me to bid you farewell; and this I do from the bottom of my heart. You will preserve a place in my heart till death; and I hope that at last we shall meet again, in a place where upright minds, according to my opinion, will be for ever united.

"Every thing belonging to the usual etiquette has been so much deranged and interrupted by my sad fate, that most probably neither you nor I will be able to fulfil the diplomatic customs.

"But be assured, that I love and honour your king and

Revolution. and nation. This you will apprize them of. Be assured also, that I wish you should preserve an affection towards your friend. If I am able to speak to you no more, my picture will speak to you for me! (Signed) STANISLAUS AUGUSTUS, KING."

This shows, at least, the fate of the king; and leaving that of the kingdom to be ascertained by time, we proceed to fulfil a promise which we made respecting another revolution, to which all the nations of Europe are still looking with anxiety and alarm.

French. When treating of France under a former article, we stated a few of the more striking historical facts which led to the commencement of the revolution; and we now come to trace the series of transactions which have marked its terrible career. In doing this, we shall compress our ideas as much as possible; and out of the endless variety of materials of which the public are in possession, we shall endeavour to extract a short and, if possible, a tolerably clear detail. For this purpose, however, it will be necessary that we begin, by stating the internal situation of France at the period immediately preceding the revolution, along with the more obvious political circumstances which contributed to the production of that event. The moral history of man is always more important than the mere recital of any physical occurrences that may take place in his lot. It is not the fall of a mighty monarch and the dispersion of his family; it is not the convulsion of empires, and the oceans of human blood which have been shed, that render the French revolution peculiarly interesting. Such events, however deplorable, are far from being without example in the history of mankind. In the populous regions of the east, where superstition and slavery have always prevailed, they are regarded as forming a part of the ordinary course of human affairs; because an intrepid and skilful usurper finds it easy to intimidate or ensnare millions of weak and credulous men. In Europe the case is very different; no adventurer can advance far without encountering thousands as artful and as daring as himself. Events are not the result either of blind hazard or of individual skill; conspiracies or plots produce little effect. Like other arts, the art of government has been brought to much perfection; and an established constitution can only be shaken by the strong convulsion produced by national passions and efforts. The wonderful spectacle which we are now to contemplate, is that of a mild and polished people becoming in an instant sanguinary and fierce; a well established government, celebrated for its dexterity and skill, overturned almost without a struggle; a whole nation apparently uniting to destroy every institution which antiquity had hallowed or education taught them to respect; a superstitious people treating the religion of their fathers with contempt; a long enslaved people, whose very chains had become dear to them, occupied in their public counsels in the discussion of refined, and even visionary schemes of freedom: in short, 25,000,000 of persons suddenly treading under foot every sentiment and every prejudice that they themselves had once regarded as sacred and venerable.

6 France was merly der a baro is ocracy.

Like the other nations of Europe, France was anciently governed by a barbarous aristocracy, whose different members were feebly united by the authority of a succession of kings destitute of power or influence. The nobles, within their own territories, enjoyed privileges entirely royal: they made peace and war; they coined money; they were judges in the last resort; their vassals were their slaves, whom they bought and sold along with the lands; the inhabitants of cities, although freemen, were depressed and poor, depending for protection upon some tyrannical baron in their neighbourhood. At length, however, by the progress of the arts, the cities rose into considerable importance, and their inhabitants, along with such freemen of low rank as resided in the country, were considered as entitled to a representation in the states-general of the kingdom, under the appellation of *tiers etat*, or *third estate*; the clergy and the nobles forming the two first estates. But the sovereign, having speedily become despotic, the meetings of the states general were laid aside. This absolute authority, on the part of the crown, was not acquired, as it was in England by the house of Tudor, by abolishing the pernicious privileges of the nobles and elevating the commons; but by skilful encroachments, by daring exertions of prerogative, and the use of a powerful military force. In France, therefore, the monarch was absolute, yet the nobles retained all their feudal privileges, and the ecclesiastical hierarchy did the same. The following was, in a few words, the state of that country during these two last centuries.

French Revolution.

7 Was never reduced into one homogeneous mass.

The kingdom of France, previous to the revolution, was never reduced to one homogenous mass. It consisted of a variety of separate provinces acquired by different means; some by marriage, some by legacy, and others by conquest. Each province retained its ancient laws and privileges, whether political or civil, as expressed in their capitularies or conditions by which they were originally acquired. In one part of his dominions the French monarch was a count, in another he was a duke, and in others he was a king; the only bond which united his vast empire being the strong military force by which it was overawed. Each province had its barriers; and the intercourse betwixt one province and another was often more restrained by local usages than the intercourse of either with a foreign country. Some of the provinces, such as Bretagne and Dauphiné, even retained the right of assembling periodically their provincial states; but these formed no barrier against the power of the court.

8 The clergy formed the first estate in the kingdom,

The clergy formed the first estate of the kingdom in point of precedence. They amounted to 130,000. The higher orders of them enjoyed immense revenues; but the *curés* or great body of acting clergy seldom possessed more than about L. 28 Sterling a-year, and their *vicaires* about half that sum. A few of their dignified clergy were men of great piety, who resided constantly in their dioceses, and attended to the duties of their office; but by far the greater number of them passed their lives at Paris and Versailles, immersed in all the intrigues and dissipation of a gay and corrupted court and capital. They were almost exclusively selected from among the younger branches of the families of the most powerful nobility, and accounted it a kind of dishonour to the order of bishops for any person of low rank to be admitted into it. The lower clergy, on the contrary, were persons of mean birth, and had little chance of preferment. At the same time, we find several respectable exceptions to this last rule. The clergy, as a body, independent of the tithes, possessed a revenue arising from their property in land, amounting

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to four or five millions Sterling annually; at the same time they were exempt from taxation. The crown had of late years attempted to break through this privilege. To avoid the danger, the clergy presented to the court a free gift of a sum of money somewhat short of a million Sterling every five years.

9 The nobility the second,

The nobility was nominally the second order of the state, but it was in reality the first. The nobles amounted to no less than 200,000 in number. The title and rank descended to all the children of the family, but the property to the eldest alone: hence vast multitudes of them were dependent upon the bounty of the court. They regarded the useful and commercial arts as dishonourable, and even the liberal professions of the law and physic as in a great measure beneath their dignity, disdaining to intermarry with the families of their professors. The feudal system in its purity was extremely favourable to the production of respectable qualities in the minds of those who belonged to the order of the nobles; but the introduction of commerce has rendered its decline equally unfavourable to that class of men. Instead of the ancient patriarchal attachment between the feudal chieftain and his vassals, the nobility had become greedy landlords in the provinces, that they might appear in splendor at court and in the capital. There, lost in intrigue, sensuality, and vanity, their characters became frivolous and contemptible. Such of the French noblesse, however, as remained in the provinces, regarded with indignation this degradation of their order, and still retained a proud sense of honour and of courage, which has always rendered them respectable. The order of the nobles was exempted from the payment of taxes, although the property of some of them was immense. The estates of the prince of Conde, for example, were worth L. 200,000 a year, and those of the duke of Orleans nearly twice as much. The crown had indeed imposed some trifling taxes upon the noblesse, which, however, they in a great measure contrived to elude.

10 The parliament the third,

Next to the nobles, and as a privileged order possessing a secondary kind of nobility of their own, we may mention the parliaments. These were large bodies of men, in different provinces, appointed as courts of law for the administration of justice. In consequence of the corruption of the officers of state, the members purchased their places, which they held for life; but the son was usually preferred when he offered to purchase his father's place. In consequence of this last circumstance, the practising lawyers had little chance of ever becoming judges. Courts thus constituted consisted of a motley mixture of old and young, learned and ignorant, men. Justice was ill administered. The judges allowed their votes in depending causes to be openly solicited by the parties or their friends. No wise man ever entered into a litigation against a member of one of these parliaments; no lawyer would undertake to plead his cause; it never came to a successful issue, and usually never came to any issue at all. After the states-general had fallen into disuse, the parliaments acquired a certain degree of political consequence, and formed the only check upon the absolute power of the crown. The laws, or royal edicts, before being put in force, were always sent to be registered in the books of the parliaments. Taking advantage of this, in favourable times and circumstances, they often delayed or refused to register the royal edicts, and presented remonstrances against them. This was done under a kind of legal fiction: for they pretended that the obnoxious edict being injurious to the public happiness, could not be the will of the king, but must either be a forgery or an imposition by the ministers. These objections were got the better of, either by a positive order from the king, or by his coming in person and ordering the edict to be registered. The parliaments, however, often carried their opposition very far, even to the ruin of themselves and their families as individuals. This rendered them extremely popular with the nation, and enabled them to embarrass a weak administration. After all, however, the opposition of the parliaments was so feeble, that it was never thought worth while to abolish them entirely till towards the end of the reign of Louis XV. but they were restored as a popular measure at the beginning of the reign of Louis XVI.

11 And the commons or *tiers* the low order.

Oppressive burdens on the commons.

The *tiers etat*, or commons, formed the lowest order of the state in France, and they were depressed and miserable in the extreme. To form a conception of their situation, it is necessary to observe that they bore the whole pecuniary burdens of the state: They alone were liable to taxation. An expensive and ambitious court; an army of 200,000 men in time of peace, and of twice that number in war; a considerable marine establishment, public roads and works, were all supported exclusively by the lowest of the people. To add to the evil, the revenues were ill collected. They were let out to farmers-general at a certain sum, over and above which they not only acquired immense fortunes to themselves, but were enabled to advance enormous presents to those favourites or mistresses of the king or the minister, by means of whom they procured their places. To raise all this money from the people, they were guilty of the cruellest oppression, having it in their power to obtain whatever revenue laws they pleased, and executing them in the severest manner. For this last purpose they kept in pay an army of clerks, subalterns, scouts, and spies, amounting to 80,000 men. These men were indeed detested by the king, whom they deceived and kept in poverty; by the people, whom they oppressed; and by the ancient nobility, as purse-proud upstarts. But the court of France could never contrive to manage without them. The peasants could be called out by the intendants of the provinces in what they called *corvées* to work upon the high roads for a certain number of days in the year, which was a source of severe oppression, as the intendant had the choice of the time and place of their employment, and was not bound to accept of any commutation in money. They were moreover subject to the nobles in a thousand ways. The nobles retained all their ancient manerial or patrimonial jurisdictions. The common people being anciently slaves, had obtained their freedom upon different conditions. In many places they and their posterity remained bound to pay a perpetual tribute to their feudal lords. Such tributes formed a considerable part of the revenue of many of the provincial nobles. No man could be an officer of the army, by a late regulation, who did not produce proofs of nobility for four generations. The parliaments, although originally of the *tiers etat*, attempted also to introduce a rule that none but the noblesse should be admitted into their order. In such a situation, it will not be accounted surprising that the common people of France were extremely superstitious

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tious and ignorant. They were, however, passionately devoted to their monarch, and whatever concerned him. In 1754, when Louis XV. was taken ill at Metz, the whole nation was truly in a kind of despair. The courier and his horse that brought the news of his recovery to Paris were both almost suffocated by the embraces of the people.

12 Despotic power of the king.

We have said that the French monarch was despotic. His power was supported by his army and by a watchful police, having in pay an infinite host of spies and other servants. In France no man was safe. The secrets of private families were searched into. Nothing was unknown to the jealous inquisition of the police. Men were seized by *lettres de cachet* when they least expected it, and their families had no means of discovering their fate. The sentence of a court of law against a nobleman was usually reversed by the minister. No book was published without the licence of a censor-general appointed by the court, and the minister was accountable to none but the king. No account was given of the expenditure of the public money. Enormous gratifications and pensions were given as the reward of the most infamous services. The supreme power of the state was usually lodged with a favourite mistress, and she was sometimes a woman taken from public prostitution. This was not indeed the case under Louis XVI. but it was nevertheless one of the misfortunes of his life that he was far from being absolute in his own family. Still, however, with all its faults, the French court was the most splendid and polished in Europe. It was more the resort of men of talents and literature of every kind, and there they met with more ample protection, than anywhere else. The court was often jealous of their productions, but they met with the most distinguished attention from men of fortune and rank; insomuch that for a century past the French have given the law to Europe in all questions of taste, of literature, and of every polite accomplishment. The gay elegance that prevailed at court diffused itself through the nation; and amidst much internal misery, gave it to a foreigner the appearance of happiness, or at least of levity and vanity.

13 Splendour of the court.

14 Causes of the Revolution.

Such as it was, this government had stood for ages, and might have continued, had not a concurrence of causes contributed to its overthrow. The inferior orders of clergy, excluded from all chance of preferment, regarded their superiors with jealousy and envy, and were ready to join the laity of their own rank in any popular commotion. The inferior provincial noblesse beheld with contempt and indignation the vices and the power of the courtiers, and the higher nobility wished to diminish the power of the crown. The practising lawyers, almost entirely excluded from the chance of becoming judges, wished eagerly for a change of affairs, not doubting that their talents and professional skill would render them necessary amidst any alterations that could occur. Accordingly, they were the first instruments in producing the revolution, and have been its most active supporters. The monied interest wished eagerly for the downfal of the ancient nobility. As for the great mass of the common people, they were too ignorant, too superstitiously attached to old establishments, and too much depressed, to have any conception of the nature of political liberty, or any hope of obtaining it. We have already stated the leading circumstances which led to the French revolution (see FRANCE, n° 184, &c.); but there were other circumstances which contributed in an equal degree both to its commencement and its progress.

For 40 years the principles of liberty had been disseminated with eagerness in France by some men of great talents, as Rousseau, Helvetius, and Raynal, to whom the celebrated Montesquieu had led the way. Besides these, there was in France a vast multitude of what were called *men of letters*, or persons who gave this account of the manner in which they spent their time. All these were deeply engaged on the side of some kind of political reform. The men of letters in Paris alone are said to have amounted to 20,000. One of the last acts of the administration of the archbishop of Thoulouse was, on the 5th July 1788, to publish a resolution of the king in council, inviting all his subjects to give him their advice with regard to the state of affairs. This was considered as a concession of an unlimited liberty of the press; and it is scarcely possible to form an idea of the infinite variety of political publications which from that period diffused among the people a dissatisfaction with the order of things in which they had hitherto lived.

The established religion of France had for some time past been gradually undermined. It had been solemnly assaulted by philosophers in various elaborate performances; and men of wit, among whom Voltaire took the lead, had attacked it with the dangerous weapon of ridicule. The Roman Catholic religion is much exposed in this respect, in consequence of the multitude of false miracles and legendary tales with which its history abounds. Without discriminating betwixt the respectable principles on which it rests, and the superstitious follies by which they had been defaced, the French nation learned to laugh at the whole, and rejected instead of reforming the religion of their fathers. Thus the first order in the state had already begun to be regarded as useless, and the minds of men were prepared for important changes.

The immense population of the city of Paris, amounting to upwards of 800,000 souls, rendered it an important engine in the hands of the conductors of the revolution. An overgrown capital has always proved dangerous to a government that is or attempts to be despotic, as appears from the history of ancient Babylon and Rome, as well as of modern Constantinople, of London under Charles I. and Paris under several of its kings.

We cannot here avoid mentioning a physical event, which assisted not a little in producing many of the convulsions attending the revolution, a general scarcity of grain, which occurred about that period. On Sunday the 13th of July 1788, about nine in the morning, without any eclipse, a dreadful darkness suddenly overspread several parts of France. It was the prelude of such a tempest as is unexampled in the temperate climates of Europe. Wind, rain, hail, and thunder, seemed to contend in impetuosity; but the hail was the great instrument of ruin. Instead of the rich prospects of an early autumn, the face of nature in the space of an hour presented the dreary aspect of universal winter. The soil was converted into a morass, the standing corn beaten into the quagmire, the vines broken to pieces, the fruit trees demolished, and unmelted hail lying in heaps like rocks of solid ice. Even the [illegible]

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forest trees were unable to withstand the fury of the tempest. The hail was composed of enormous, solid, and angular pieces of ice, some of them weighing from eight to ten ounces. The country people, beaten down in the fields on their way to church, amidst this concussion of the elements, concluded that the last day was arrived: and scarcely attempting to extricate themselves, lay despairing and half suffocated amidst the water and the mud, expecting the immediate dissolution of all things. The storm was irregular in its devastations. While several rich districts were laid entirely waste, some intermediate portions of country were comparatively little injured. One of 60 square leagues had not a single ear of corn or a fruit of any kind left. Of the 66 parishes in the district of Pontoise, 43 were entirely desolated, and of the remaining 23 some lost two thirds and others half their harvest. The isle of France, being the district in which Paris is situated, and the Orleannois, appear to have suffered chiefly. The damage there, upon a moderate estimate, amounted to 80,000,000 of livres, or between three and four millions Sterling. Such a calamity must at any period have been severely felt; but occurring on the eve of a great political revolution, and amidst a general scarcity throughout Europe, it was peculiarly unfortunate, and gave more embarrassment to the government than perhaps any other event whatever. Numbers of families found it necessary to contract their mode of living for a time, and to dismiss their servants, who were thus left destitute of bread. Added to the public discontent and political dissensions, it produced such an effect upon the people in general, that the nation seemed to have changed its character; and instead of that levity by which it had ever been distinguished, a settled gloom now seemed fixed on every countenance.

15 Attempt to reduce the power of the crown in spring 1789.

The spring of the year 1789 was a period of much political anxiety in France. The superior orders wished to reduce the power of the crown, but were jealous of their own privileges, and determined to retain them; while the popular philosophers and others were endeavouring to render them odious, and to rouse the people to a love of freedom. Still, however, the great body of the common people remained careless spectators of the struggle and unconscious of the approaching commotion. Such was their indifference, that few of them took the trouble even to attend and vote at the elections of the deputies to the states-general. In many places, where a thousand voters were expected, not fifty came forward; but such of them as did appear showed that a seed was sown which might one day rise into important fruits. In the instructions which they gave to their deputies, the British constitution was in general the model of what they wished their government to be. They demanded equal taxation, the abolition of *lettres de cachet* or arbitrary imprisonment, the responsibility of ministers, and the extinction of the feudal privileges of the nobles; but they wished that the whole three orders of the state should sit and vote in one house, well knowing that their nobility were not prepared to act the moderate part of a British house of lords. The nobles, on the contrary, although willing to renounce some of their pecuniary privileges, and to sacrifice the power of the crown, were most decisively resolved neither to surrender their feudal prerogatives nor the right of sitting in three separate assemblies; by means of which each of the orders could easily resist the encroachments of the other two. Mr Neckar has been improperly censured for not deciding this last important question previous to the meeting of the states-general: but it must be observed, that the very purpose of calling that assembly was to overturn the unjust privileges of the higher orders through its medium, and without any direct interposition on the part of the ministers. Had the king positively decided in favour of three chambers, the nobles and the clergy would have retained all those ancient abuses established in their own favour, of which it was his wish to deprive them, and the crown and its prerogatives would have been the only objects of sacrifice. It was therefore thought safer to leave the *tiers etat* to fight its own battle: nor was it yet imagined that the commons of France, depressed and poor, and dispersed by situation over a multitude of provinces, could ever unite in enterprises dangerous to the sovereign.

16 States summoned to meet at Versailles.

The states had been summoned to meet at Versailles on the 27th of April, and most of the deputies arrived at that time; but the elections for the city of Paris not being concluded, the king deferred the commencement of their sessions till the 4th of May. During this period, the members, left in idleness, began to find out and form acquaintance with each other. Among others, a few members from Brittany (Bretagne) formed themselves into a club, into which they gradually admitted many other deputies that were found to be zealous for the popular cause, and also many persons who were not deputies. This society, thus originally established at Versailles, was called the *Comité Breton;* and was one day destined, under the appellation of the *Jacobin Club*, to give laws to France, and to diffuse terror and alarm throughout Europe. On the other side, the aristocratic party established conferences at the house of Madame Polignac, for the purpose, it is said, of uniting the nobles and the clergy.

17 A popular riot in the suburb St Antoine.

An event occurred at this time which all parties ascribed to some malicious motive. In the populous suburb of St Antoine, a M. Reveillon carried on a great paper manufactory. A false report was spread that he intended to lower the wages of his workmen, and that he had declared bread was too good for them, and that they might subsist very well on potato-flour. A commotion was raised, he was burnt in effigy, and his house was thereafter burnt and pillaged by the mob, who were not dispersed till the military had been called in, and much carnage ensued. The popular party asserted that the commotion had been artfully excited by the party of the queen and the Count D'Artois, to afford a pretence for bringing great bodies of the military to the neighbourhood to overawe the states-general, or induce the king more decisively to resolve on assembling that body at Versailles, in preference to Paris, where they and the popular minister M. Neckar wished it to be held.

18 The States General commence business at Versailles.

On the 4th of May the states-general assembled at Versailles. They commenced business by going in a solemn procession, preceded by the clergy, and followed by the king, according to ancient custom, to church, to perform an act of devotion. The nobles were arrayed in a splendid robe, and they and the higher clergy glittered in gold and jewels. The commons appeared in black, the dress belonging to the law. The

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assembly was thereafter opened by a short speech from the throne, in which the king congratulated himself upon thus meeting his people assembled; alluded to the national debt, and the taxes, which were severely felt because unequally levied; he took notice of the general discontent and spirit of innovation which prevailed, but declared his confidence in the wisdom of the assembly for remedying every evil. "May an happy union (added he) reign in this assembly; and may this epocha become ever memorable for the happiness and prosperity of the country. It is the wish of my heart; it is the most ardent desire of my prayers; it is, in short, the price which I expect from the sincerity of my intentions and my love for my people."

M. Barretin, the keeper of the seals, next addressed the assembly in a congratulatory and uninteresting speech. He was followed by the popular minister M. Neckar, who spoke for three hours. Though much applauded on account of the clear financial details which his speech contained, he encountered a certain degree of censure from all parties, on account of the cautious ambiguity which he observed with regard to the future proceedings of the states-general.

19 Order and activity.

Next day the three orders assembled separately. The deputies of the *tiers etat* amounted to 600 in number, and those of the nobles and clergy to 300 each. During their first sittings much time was spent in unimportant debates about trifling points of form; but the first important question, that necessarily became the subject of their discussion, was the *verification of their powers*, or production of the commissions of the members, and investigation of their authenticity. The commons *(tiers etat)* laid hold of this as a pretext for opening the grand controversy, whether the states-general should sit in one or in three separate chambers? They sent a deputation inviting the nobles and the clergy to meet along with them in the common hall for the purpose of *verifying their powers* in one common assembly. In the chamber of the clergy 114 members voted for the performance of this ceremony in the general assembly; and 133 against it. But in the more haughty order of the nobles, the resolution for the verification in their own assembly was carried by a majority of 188 against 47. The commons paid no regard to this. They were conducted by bold and skilful leaders, who discerned the importance of the point in contest, and resolved not to abandon it. Aware of the exigencies of the state, they knew that the crown was nearly verging upon bankruptcy; and that such were the deficiencies of the revenue that only a short delay was necessary to accomplish the absolute dissolution of the government. They suffered five weeks to pass away therefore in total inactivity. During this period proposals were made on the part of the ministry for a pacification between the three orders, and conferences were opened by commissioners from each. But no art could seduce the commons from their original purpose, or prevail with them to enter upon the business of the state.

20 Popularity of the *Tiers Etat*, &c.

The nation had expected much from the assembling of the states-general, and learnt the news of their inaction with no small degree of concern. The *tiers etat* was naturally popular, and the public censure could not readily devolve upon that favourite order. Moreover, from the first period of their assembling the commons made every effort to augment their own natural popularity. They admitted all persons promiscuously into the galleries, and even into the body of their hall. No restraint was attempted to be laid upon the most vehement marks of popular applause or censure. Lists of the voters names were publicly taken and sent to Paris upon every remarkable occasion; and the members suddenly found themselves become, according to their political sentiments, the objects of general execration or applause. The new and bold notions of liberty that were daily advanced by the leaders of the *tiers etat* were received with acclamation by their hearers. The capital became interested in the issue of every debate; and the political fervor was eagerly imbibed by the nation with that vivacity which is so peculiar to the French. The commons accused the nobles of obstinately impeding the business of the state, by refusing to verify their powers in one common assembly. The accusation was swallowed by the multitude, who saw not, or were unwilling to see, that the attack was made by their own favourite order. In the mean time the nobles became rapidly more and more unpopular. Their persons were insulted, new publications daily came forth, and were greedily bought up, which reviled their whole order, and represented them as an useless or pernicious body of men, whose existence ought not to be tolerated in a free state. Whoever adhered to them was branded with the odious appellation of *Aristocrate*. The clergy, from the influence of the parish *curés* or parsons, seemed ready to desert their cause. They were even opposed by a minority of their own body, which derived lustre from having at its head the duke of Orleans, the first prince of the blood. Still, however, the majority of the nobles remained firm; well aware, that if they once consented to sit in the same assembly, and to vote promiscuously, with the ambitious and more numerous body of the commons, their whole order, and all its splendid privileges, must speedily be overthrown.

21 Taking advantage of this popularity, they seize the legislative authority;

The leaders of the commons saw the change that was taking place in the minds of men; and they at length regarded the period as arrived when they ought to emerge from their inactivity, and execute the daring project of seizing the legislative authority in their country. They declared that the representatives of the nobles and the clergy were only the deputies of particular incorporations whom they would allow to sit and vote along with themselves; but who had no title in a collective capacity to act as the legislators of France. For conducting business with more facility, they appointed 20 committees. In consequence of a proposal by the Abbé Sieyes, a final message was sent to the privileged orders requiring their attendance as individuals, and intimating that the commons, as the deputies of 96 out of every hundred of their countrymen, were about to assume the exclusive power of legislation. None of the nobles obeyed this summons; but three curés, Messrs Cesve, Ballard, and Jalot, presented their commissions, and were received with loud acclamations. They were next day followed by five more, among whom were Messrs Gregoire, Dillon, and Bodineau. After some debate concerning the appellation which they ought to assume, the commons, with such of the clergy as had joined them, solemnly voted themselves the sovereign legislators of their country under the name of the *National Assembly*. The result of the vote was no sooner declared, than the hall resounded

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with shouts from the immense concourse of spectators of "Vive le Roi et vive l'assemble nationale," *Long live the king and the national assembly.* M. Bailly was chosen president for four days only, Messrs Camus and Pison de Galand secretaries, and the assembly proceeded to business.

22 And assert their own sovereignty.

Its first acts were decisively expressive of its own sovereignty. All taxes imposed without the consent of the representatives of the people were declared to be null and void; but a temporary sanction was given to the present taxes, although illegal, till the dissolution of the assembly and no longer. It was added, that "as soon as, in concert with his majesty, the assembly should be able to fix the principles of national regeneration, it would take into consideration the *national debt*, placing from the present moment the creditors of the state under the safeguard and honour of the French *nation*."

23 Majority of the clergy unite with them.

The popular cause now gained ground so fast, that on the 19th of June a majority of the clergy voted for the verification of their powers in common with the national assembly, and they resolved to unite with them on the following day.

24 Fears of the nobles.

Affairs were now come to a crisis, and the nobles perceived that they must instantly make a decisive stand, or yield up their cause as finally lost. Such was their alarm, that M. d'Espremenil proposed, at one of the sittings of their order, to address the king, intreating him to dissolve the states-general. Hitherto that prince had gone along with M. Neckar in favouring the popular cause in opposition to the aristocracy. But every art was now used to alarm his mind upon the subject of the late assumptions of power on the part of the commons, and these arts were at length successful. Repeated counsels were held; M. Neckar was absent attending a dying sister, and the king was prevailed upon to act agreeably to the advice of the leaders of the nobles. But the first measure which they adopted was so ill conducted as to afford little prospect of final success to their cause. On the 20th of June, when the president and members were about to enter as usual into their own hall, they found it unexpectedly surrounded by a detachment of the guards, who refused them admission, while the heralds at the same time proclaimed a royal session. Alarmed by this unforeseen event, the meaning of which they knew not, but apprehending that an immediate dissolution of the assembly was designed, they instantly retired to a neighbouring tennis-court, where, in the vehemence of their enthusiasm, they took a solemn oath "never to separate till the constitution of their country should be completed."

25 Royal session proclaimed.

On the 22d a new proclamation intimated that the royal session, was deferred till the following day. It was now found that the assembly had been excluded from their hall merely because the workmen were occupied in preparing it for the intended solemnity. This information was ill calculated to excite favourable expectations of the measures about to be adopted at a royal session, ushered in by such circumstances of marked disrespect for the representatives of the people. The assembly, after wandering about in search of a place of meeting, at length entered the church of St Louis, and were immediately joined by the majority of the clergy, with their president, the archbishop of Vienne, at their head. Two nobles of Dauphiné, the marquis de Blagon and the count d'Agoult, presented their commissions at the same time. Encouraged by these events, and by the applauses of surrounding multitudes, the assembly now expected with firmness the measures about to be adopted.

26 The Assembly meets in the church of St Louis.

The royal session was held in the most splendid form, but altogether in the style of the ancient despotism. Soldiers surrounded the hall. The two superior orders were seated, while the representatives of the people, left standing a full hour in the rain, were in no humour, when at last admitted, to receive with much complacency the commands of their sovereign. The king read a discourse, in which he declared null and void the resolutions of the 17th, but at the same time presented the plan of a constitution for France. It contained many good and patriotic principles, but preserved the distinction of orders, and the exercise of *lettres de cachet*; it said nothing about any active share in the legislative power to be possessed by the states-general, and was silent both about the responsibility of ministers and the liberty of the press. The king concluded by commanding the deputies immediately to retire, and to assemble again on the following day. He then withdrew, and was followed by all the nobles and a part of the clergy. The commons remained in gloomy silence on their seats. It was interrupted by the grand master of the ceremonies, who reminded the president of the intentions of the king. Instantly the vehement count de Mirabeau, starting from his seat, exclaimed with indignation, "The commons of France have determined to debate. We have heard the intentions that have been suggested to the king; and you, who cannot be his agent with the states-general, you who have here neither seat nor voice, nor a right to speak, are not the person to remind us of his speech. Go tell your master, that we are here by the power of the people, and that nothing shall expel us but the bayonet." The applause of the assembly seconded the enthusiasm of the orator, and the master of the ceremonies withdrew in silence.

27 Discourse of the king.

28 Still received by the commons.

29 Debates after the king's departure.

M. Camus then rose; and in a violent speech indignantly stigmatised the royal session by the obnoxious appellation of a *bed of justice*; he concluded by moving that the assembly should declare their unqualified adherence to their former decrees. This motion was followed by another, pronouncing the persons of the deputies inviolable. Both were supported by Messrs Petion, Barnave, Glaizen, the Abbés Gregoire, Sieyes, and many others, and were unanimously decreed. The assembly therefore continued their sittings in the usual form. On the following day the majority of the clergy attended as members; and on the 25th the duke of Orleans, along with 49 of the deputies belonging to the order of nobles, joined them also. The remaining nobles, as well as the small minority of the clergy, now found themselves awkwardly situated. Whether on this account, or because their leaders had by this time formed a plan for carrying their point not by peaceable means but by the aid of a military force, the king, on the 27th, invited by a pressing letter both orders to join the commons. This request was immediately complied with, although many of the nobility disapproved of the measure.

30 Alarming situation of France at this period.

The situation of France was now become truly alarming. When the king retired from the assembly after the royal session, he was followed by more than 6000 citizens,

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citizens, from whom loud clamours and every mark of disapprobation broke forth. All Versailles was speedily in an uproar. M. Neckar had repeatedly solicited his dismission, and the report of this had increased the popular clamour. The court was in consternation. The king probably discovered, with no great satisfaction, that his minister was more popular than himself. At six o'clock in the evening the queen sent for M. Neckar. When he returned from the palace, he assured the crowd that waited for him that he would not abandon them; upon which they retired satisfied. At the same time the news of the royal session had thrown the city of Paris into violent agitation. The peace of that capital was at this time endangered by a variety of causes. A dreadful famine raged through the land, which in a great city is usually most severely felt. This prepared the minds of men for receiving unfavourable impressions of their political state. Every effort was moreover made to disorganize the government, and produce a dislike to the ancient order of things. The press poured forth innumerable publications, filled with new and seducing, though generally impracticable, theories of liberty. These were distributed *gratis* among the bulk of the people of Paris, and dispersed in the same manner through the provinces. Philip duke of Orleans (presumptive heir to the crown failing the children and brothers of the king) is with good reason believed to have supplied this expence out of his more than royal revenues. In the gardens of the Palais Royale at Paris, which belonged to him, an immense multitude was daily assembled, listening from morning to night to orators who descanted upon the most violent subjects of popular politics. Many of these orators were suspected to be in his pay. It was even believed that his money found its way into the pockets of some of the most distinguished leaders in the national assembly.

31 Numerous seditious practices.

But the government was, if possible, still more dangerously assaulted by the methods now generally used to seduce the military. Every officer of the French army belonged to the order of the nobles; and from that quarter, therefore, it might have been imagined that there was little danger. But this very circumstance became the means of disorganizing that great engine of despotism. As the soldiers could not avoid imbibing some of the new opinions, their own officers became the first objects of their jealousy; especially in consequence of that impolitic edict of Louis XVI. which required every officer to produce proofs of four degrees of nobility; and thus insulted, by avowedly excluding the private men from promotion. Perhaps with a view to what might happen, the instructions to the deputies of the *tiers etat* had recommended an increase of the pay of the soldiers. And now at Paris every art was used to gain them to the popular cause. They were conducted to the Palais Royal, and were there caressed and flattered by the populace, while they listened to the popular harangues. These arts were successful. On the 23d of June they first refused to fire on the mob in a riot. Some of them were on the 30th reported to be in confinement for this offence; a crowd instantly collected, and rescued them, the dragoons that were brought to suppress the tumult grounding their arms: a deputation of the citizens solicited of the assembly the pardon of the prisoners. The assembly applied to the king, who pardoned them accordingly.

32 Mutinous conduct of the military.

All these events, together with the tumultuous state of the capital, which was daily increasing, made it necessary for the king to call out the military force to restore, if possible, the public peace. That his intentions were pure, the then state of affairs will permit no man but a democrate to doubt; but the aristocracy, with the Count d'Artois at their head, were bringing forward other measures, which ultimately contributed to the ruin of themselves, the king, and the kingdom. Crowds of soldiers were collected from all parts of the kingdom around Paris and Versailles. It was observed, that these consisted chiefly of foreign mercenaries. Camps were traced out. Marshal Broglio, a tried veteran, was sent for and placed at the head of the army. The king was supposed to have entirely yielded to new counsels, and every thing bore the appearance of a desperate effort to restore the energy of the ancient government. This is the most important period of the French revolution; yet the specific designs of the leading actors have never been clearly understood. It was rumoured at the time, that Paris was to be subdued by a siege and bombardment; that the assembly was to be dissolved, and its leaders put to death. These are incredible exaggerations; but the crisis of French liberty was universally regarded as at hand, and also the existence of the national assembly as an independent body; or at least upon any other footing than that proposed by the king on the 23d of June.

33 The military called out.

An able and eloquent address to the king against the assemblage of foreign troops in their neighbourhood was brought forward by Mirabeau, and voted by the assembly. The king properly replied, that the state of the capital was the cause of assembling the troops, and offered to transfer the states-general to Noyons or Soissons. "We will neither remove (exclaimed Mirabeau) to Noyons nor to Soissons; we will not place ourselves between two hostile armies, that which is besieging Paris and that which may fall upon us from Flanders or Alsace; we have not asked permission to run away from the troops; we have desired that the troops should be removed from the capital."

33 The assembly address the king to remove them, which is refused.

Thirty-five thousand men were now stationed in the neighbourhood of Paris and Versailles. The posts were occupied which commanded the city, and camps were marked out for a greater force. The Count d'Artois and his party regarded their plans as ripe for execution; and M. Neckar received a letter from the king, requiring him to quit the kingdom in 24 hours. That popular (A) minister took the route of Brussels on the following day, when his departure was made public. In his dismission the popular, or as it was now called the *democratic*, party thought they saw the resolution adopted to accomplish their ruin. The assembly again addressed the throne; they requested anew the removal of the king;

34 They again address the king;

(A) Popular he certainly was; but he either had not fortitude and talents to execute his own plans, or acted a base part to his amiable master. From baseness we acquit him.

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of the troops, offering to be responsible for the public peace, and to proceed in a body to Paris to encounter personally every danger that might occur. But they were coolly told, that the king was the best judge of the mode of employing the troops, and that the presence of the assembly was necessary at Versailles. From a sovereign who doubtless recollected the proceedings of the long parliament of England, a different reply could not in reason be expected. On receiving it, however, it was instantly decreed, on the motion of the marquis de la Fayette, that the late ministry had *carried with them* the confidence of the assembly; that the troops *ought* to be *removed;* that the ministry are and shall be responsible to the people for their conduct; that the assembly persisted in all its former decrees; and that as it had taken the public debt under the protection of the nation, no power in France was entitled to pronounce the infamous word *bankruptcy*.

35 And are again refused.

35 Decree of the assembly in consequence.

36 Consternation in Paris on Necker's retreat.

The city of Paris was thrown into deep consternation by the news of M. Neckar's retreat. His bust and that of the Duke d'Orleans were dressed in mourning, and carried through the streets. The royal Allemand, a German regiment, broke in pieces the busts, and dispersed the populace. The prince De Lambesq, grand ecuyer of France, was ordered to advance with his regiment of cavalry, and take post at the Thuilleries. Being a man of a violent temper, and enraged by the appearances of disapprobation which were visible around him, he furiously cut down with his sword a poor old man who was walking peaceably in the gardens. The consequences of this act of inhumanity were such as might have been expected; a shout of execration instantly arose; the cry *to arms* was heard; the military were assaulted on all sides; the French guards joined their countrymen, and compelled the Germans, overpowered by numbers, and unsupported by the rest of the army, to retire.

37 Cruelty of the Prince De Lambesq.

38 Terror in the city universal.

All order was now at an end, and as night approached an universal terror diffused itself through the city. Bands of robbers were collecting; and from them or from the foreign soldiery a general pillage was expected. The night passed away in consternation and tumult. It was found in the morning that the hospital of St Lazare was already plundered. The alarm bells were rung; the citizens assembled at the Hotel de Ville, and adopted a proposal that was there made, of enrolling themselves as a militia for general defence, under the appellation of the *national guard.* This day and the succeeding night were spent in tolerable quietness, without any attempt on the part of the army. On the morning of the memorable 14th of July, it was discovered that the troops encamped in the Champs Elisées had moved off, and an immediate assault was expected. The national guard now amounted to 150,000 men; but they were in general destitute of arms. They had assumed a green cockade; but on recollecting that this was the livery of the Count d'Artois, they adopted one of red, blue, and white. M. de la Salle was named commander in chief, officers were chosen, and detachments sent around in quest of arms. In the Hotel des Invalides upwards of 30,000 stand of arms were found, along with 20 pieces of cannon; a variety of weapons was also procured from the *garde meuble de la couronne*, and from the shops of armourers, cutlers, &c.

The celebrated fortress of the Bastile was an object of much jealousy to the Parisians. At 11 o'clock in the morning, M. de la Rosiere, at the head of a numerous deputation, waited upon M. de Launay the governor, who promised, along with the officers of his garrison, that they would not fire upon the city unless they should be attacked. But a report was soon spread through Paris, that M. de Launay had, in a short time thereafter, admitted into the fortress a multitude of persons, and then treacherously massacred them. The cause of this piece of perfidy has never been explained. The fact itself has been denied; but it was attested at the time by the duke of Dorset, the British ambassador at the court of France. The effect of the report was, that a sudden resolution was adopted of assaulting the Bastile; an immense and furious multitude rushed into its outer, and soon forced their way into its inner, courts, where they received and returned a severe fire for the space of an hour. The French guards, who were now embodied into the national guard, conducted the attack with skill and coolness: they dragged three waggons loaded with straw to the foot of the walls, and there set them on fire; the smoke of these broke the aim of the garrison, while it gave no disturbance to the more distant assailants. The besieging multitude pressed the attack with incredible obstinacy and vigour for the space of four hours; the garrison was in confusion; the officers served the cannon in person, and fired their muskets in the ranks; the governor, in despair, thrice attempted to blow up the fortress. A capitulation, when at last sought, was refused to the garrison, and an unconditional surrender took place. The governor, and M. de Losme Salbrai his major, a gentleman of distinguished humanity and honour, became victims of popular fury in spite of every effort that could be made for their protection; but the French guards succeeded in procuring the safety of the garrison. Only seven prisoners were found in the Bastile. A guard was placed in it, and the keys were sent to the celebrated M. Brissot de Warville, who a few years before had inhabited one of its caverns.

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39 The Bastile attacked;

40 And surrender unconditionall

The remaining part of this eventful day was spent at Paris in a mixture of triumph and alarm. In the pocket of the governor of the Bastile a letter was found, encouraging him to resistance by the promise of speedy succours, written by M. de Flesselles, the prevot de marchands, or chief city magistrate, who had pretended to be a most zealous patriot. This piece of treachery was punished by instant death; and his bloody head was carried through the city on a pole, along with that of M. de Launay. At the approach of night a body of troops advanced towards the city, at the Barriere d'Enfer. The new national guard hurried thither, preceded by a train of artillery, and the troops withdrew upon the first fire: barricadoes were everywhere formed, the alarm-bells were rung, and a general illumination continued during the whole of this night of confusion.

41 A new ministry appointed.

In the mean time, it was obvious that the new ministry were entering upon a difficult scene of action, where one false step might lead to ruin, and where their own plan of conduct ought to be maturely digested. Marshall Broglio was made minister of war, the baron de Breteuil president of finance, M. de la Galeziere comptroller-general, M. de la Porte intendant of the war department, and M. Foulon intendant of the navy;

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42 Critical situation, difficulties and confusion.

navy; but these were only meant to act as official men, under the Count d'Artois, and the other leaders of the aristocracy. To these leaders there did not even remain a choice of difficulties; no resource was left but that of overawing by military power the national assembly and the capital, and of risking the desperate measure of a national bankruptcy, which the court had not formerly dared to encounter, and to avoid which it had convoked the states-general. No trace remains, however, of any attempt to put this criminal, but last resource, in execution. The evening after the departure of M. Neckar was spent by the court of Versailles in feasting and joy, as if a victory had been gained. The courtiers of both sexes went round among the soldiery, striving to secure their fidelity by caresses, largesses, and every species of flattering attention. The ministry not only failed to support the Prince de Lambesq in the post which he had been sent to occupy, but they suffered the whole of the 13th to pass in indecision, while the capital was in a state of rebellion, while an army was formally mustering within its walls, and the names of the principal nobility were put up in lists of proscriptions. They received the news of the capture of the Bastile with confusion and dismay, which were increased, if possible, by information given by Marshal Broglio, that the troops refused to act against Paris or the national assembly. In this perplexity they adopted the miserable device of concealing from the king the state of public affairs; and that unfortunate prince was thus perhaps the only person out of millions around him who remained ignorant of the convulsions in which his country was involved.

At length, at midnight, the Duke de Liancourt forced his way into the king's apartment, and told him of the revolt of his capital, of his army, and of the surrender of the fortress of the Bastile. The Count d'Artois, who was present, still attempted to retain the monarch under his fatal delusion; but the Duke de Liancourt turning round, exclaimed, "As for you, Sir, your life can only be saved by instant flight; I have seen with horror your name in the bloody list of the proscribed." Accordingly the Count, with the members of his short-lived administration and their adherents, fled to the frontiers. And thus an emigration commenced, the source of that terrible contest which has covered Europe with bloodshed and mourning. This ministry had, no doubt, many difficulties to contend against; but an accurate attention to their conduct excites a suspicion which, while it exculpates them from many intended crimes that have been laid to their charge, at the same time does little honour to their talents. It is this, that they had come into office without having formed any clear plan of conduct; that they were men acting without decision and at random, and consequently became the sport of those events which they wanted skill and vigour to direct or controul. By their introduction into office, and their misconduct while in it, the royal authority fell prostrate before the popular party in the national assembly. The nobles and the clergy still remained, but confounded in one assembly with the more numerous order of the *tiers etat;* and no longer rallying round a throne that was too feeble to afford protection, they soon yielded to that fierce and levelling spirit of democracy that now rose around them.

But the person of the monarch was still beloved.— Early next morning the king went to the assembly, but with none of the usual solemnities. He "regretted the commotions of the capital, disavowed any knowledge of an intention against the persons of the deputies, and intimated that he had commanded the removal of the troops." A deep and expressive silence prevailed for a few moments; this was succeeded by vehement and universal shouts of applause. The king arose to depart, and instantly the whole assembly crowded around, and attended him to his palace. The queen appeared at a balcony with the dauphin in her arms; the music played the pathetic air of *On peut-on être mieux qu'au sein de sa famille.* The enthusiasm of loyalty communicated itself to the surrounding multitudes, and nothing was heard but acclamations of joy.

43 The king goes to the assembly,

44 And next day visits the city of Paris in person;

On the following day, the king declared his resolution to visit the city of Paris in person. Accordingly that prince, who never wanted personal courage, however deficient he might be in political stedfastness, set out, attended by some members of the assembly and by the militia of Versailles. He was met by the celebrated M. de la Fayette, at the head of a body of the national guard, of which he had now been chosen commander in chief. M. Bailly, in whose person the ancient office of mayor of Paris had been revived, received the king at the gates, and delivered to him the keys. All this while no shout was heard from the crowd of innumerable spectators but that of *Vive la nation.* The king advanced to the Hotel de Ville, where the new cockade was presented to him, which he put on, and presented himself with it at a window. At the sight of this badge of patriotism an universal shout of *Vive le Roi* burst forth from every quarter; and he returned to Versailles amidst general triumph and applause.

45 In which much confusion prevailed.

Much confusion still prevailed in the capital; but there was more appearance of regularity than could have been expected at the conclusion of such important events. This arose from a casual concurrence of circumstances. To conduct with ease the elections to the states-general, Paris had been divided into 60 districts, each of which had a separate place of meeting. The people did not elect the members to the states-general; but they chose delegates, who, under the name of electors, voted for the members. At the commencement of the disturbances, the electors, at the request of their fellow-citizens, assumed a temporary authority; of which, however, they were soon weary, and as soon as possible procured the public election of 120 persons as municipal officers for the government of the city. The citizens having got the habit of assembling in their districts, grew fond of it: they assembled frequently, made rules for their own government, and sent commissioners to communicate with other districts. The tumultuous nature of these meetings, and the vehemence of debate which prevailed in them, will best be conceived from the ludicrous contrivance of one of their presidents, who stationed a drummer at the back of his chair, and when the confusion and noise became too ungovernable, gave the signal for beating the drum, which speedily overpowered every other noise. These meetings, however, gradually ripened into clubs, in which much dexterity and intrigue were exerted.

The whole of the late ministry escaped excepting M. Foulon,

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Foulon. His character, it may well be imagined, was extremely unpopular; for he is said to have asserted, that he would "make the people of Paris eat hay." He had retired to the country, but was seized by his own vassals, and brought to Paris with a bundle of hay tied to his back. In spite of every effort made by M. M. Bailly and Fayette to procure him a fair trial at least, he was carried to the *Place de Greve*, and hanged at a lamp-iron by the enraged multitude. His son-in-law M. Berthier, attempting to defend himself against a similar fate, fell, covered with wounds. Their heads were carried round on poles; and thus the populace became habituated to the sight of blood and murder: they were even taught by popular songs to glory in such actions, and particularly by the well known song *Ca-ira*.

46 Fate of M. Foulon, one of the late ministry, and his son-in-law Berthier.

47 M. Necker returns, and the immediate consequences of it.

In consequence of an invitation from the king, M. Necker returned to France. He was received by the assembly with great applause, and in Paris with infinite solemnity and triumph. He here, however, committed a political error that made some noise. In deploring the late excesses and murders, and taking notice of the arrest of M. Bezenval, an officer of the Swiss guards, he requested of the electors at the Hotel de Ville, in a solemn harangue, that the past should be forgotten; that proscriptions should cease, and a general amnesty be proclaimed. In a moment of enthusiasm this was agreed to, and the electors decreed what unquestionably exceeded their powers. The districts of Paris were instantly in commotion; the electors alarmed, declared that they only meant that "henceforth the people would punish no man but according to law;" and, at the same time, to prove that they themselves were free from ambition, they formally renounced all their own powers. The assembly took up the question. Mess. Lally, Tolendal, Mounier, Clermont, Tonnerre, Garat junior, and others, declared that no person ought to be arrested without a formal accusation. While Mess. Mirabeau, Robespierre, Barnave, and Gleizen, alleged, on the contrary, that the people were entitled to lay hold of any man who had publicly appeared at the head of their enemies. The debate ended, by admitting the explanation of the electors, and by a declaration that it was the duty of the assembly to see justice executed in all cases.

48 The commotions &c of the capital reach to the provinces.

The commotions and enthusiasm of the capital were speedily communicated to the provinces. In every quarter the people seized upon all the arms that could be found, and the military uniformly refused to act against them. Many acts of outrage were committed in Brittany, at Strasbourg, in the Lionnois, and elsewhere, in which the nobility were the sufferers. The mischiefs that occurred were usually magnified at a distance; but that very circumstance was an additional evil. For example: It was stated in the National Assembly that M. de Mesmay, lord of Quincey, invited a number of patriots, among whom were the officers of a neighbouring garrison, to a splendid entertainment at his house, to celebrate the happy union of the three orders: That in the midst of the feast the master of the house contrived to withdraw unnoticed, and to set fire to a train previously laid, which communicated with a quantity of gunpowder in the cellars, in consequence of which the whole company, by a sudden explosion, were blown into the air. It was found on inquiry, that there was not one word of truth in the whole story. But before this inquiry could be made, all France had resounded with accounts of the pretended bloody tragedy; and the whole nobility of the kingdom suffered in a less or greater degree, from the prejudices excited by this unhappy report, the origin of which has never been well explained. It would be vain to state all the idle rumours to which at this time the blind credulity of the multitude gave currency. At one time, the Aristocrates were cutting down the green corn, at another time they were burying flour in common sewers, or casting loaves into the Seine. One report was no sooner proved to be false than another arose, and the whole nation was agitated by suspicion and alarm. The National Assembly were engaged in framing their celebrated declaration of the rights of man, which was to form the basis of the new constitution, when the alarming accounts, received from all quarters, of the state of anarchy into which the kingdom was falling, obliged them suddenly to turn their attention to objects of practical necessity. The privileged orders found themselves become the objects of universal jealousy and hatred; and that something must instantly be done to save their families and property, which were menaced on every side with persecution and pillage. Regarding the popular torrent as now become irresistible, to save something they resolved to sacrifice a part.

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49 Viscount de Noailles and D. d'Aguillon propose that

On the afternoon sitting of the 4th of August, the Viscount de Noailles, seconded by the Duke d'Aguillon, opened one of the most important scenes in the French Revolution, or in the history of any conntry. These noblemen stated, that the true cause of the commotions which convulsed the kingdom existed in the misery of the people, who groaned under the double oppression of public contributions and of feudal services. "For three months (said M. de Noailles) the people have beheld us engaged in verbal disputes, while their own attention and their wishes are directed only to things. What is the consequence? They are armed to reclaim their rights, and they see no prospect of obtaining them but by force." He therefore proposed to do justice as the shortest way of restoring tranquillity, and for that purpose to decree, that henceforth every tax should be imposed in proportion to the wealth of the contributors, and that no order of the state should be exempted from the payment of public burdens; that feudal claims should be redeemed at a fair valuation; but that such claims as consisted of personal services on the part of the vassal should be abolished without compensation, as contrary to the imprescriptible rights of man. The extensive possessions of the noblemen who made these proposals added much lustre to the disinterested sacrifice which they offered. Their speeches were received with the most enthusiastic applauses by the Assembly and the galleries, and their proposals were decreed by acclamation without a vote. No nation is so much led by the influence of sudden emotions as the French. The patriotic contagion now spread fast through every breast, and a contest of generosity ensued. The hereditary jurisdictions possessed by the nobles within their own territories were next sacrificed. All places and pensions granted by the Court were suppressed, unless granted as the reward of merit or of actual services. The game laws, which condemned the husbandman, under severe penalties, to leave his property

50 The tax should be in proportion to the wealth of the contributors

51 The game laws abolished.

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ty a prey to infinite multitudes of animals reserved for pastime, had always been numbered among the severe grievances of the French peasantry. These were therefore renounced, along with the exclusive rights of rabbit warrens, fisheries, and dovecotes. The sale of offices was abolished, and the fees exacted from the poor, together with the privilege of holding a plurality of livings, were relinquished by the clergy. The deputies of the *Pais d'Etat*, or privileged provinces, with the deputies of Dauphiné at their head, next came forward, and offered a surrender of their ancient privileges, requesting that the kingdom might no longer remain parcelled out among Dauphinois, Bretons, Provençaux, &c. but that they should all form one great mass of French citizens. They were followed by the representatives of Paris, Marseilles, Lyons, Bourdeaux, Strasbourg, &c. who requested leave to renounce all their separate privileges as incorporations, for the sake of placing every man and every village in the nation upon a footing of equality. Thus the Assembly proceeded, till every member had exhausted his imagination upon the subject of reform. To close the whole, the Duc de Liancourt proposed that a solemn *Te Deum* should be performed, that a medal should be struck in commemoration of the events of that night; and that the title of RESTORER OF GALLIC LIBERTY should be bestowed upon the reigning monarch. A deputation was accordingly appointed to wait upon the king, respectfully to inform him of these decrees.

52 Many antient privileges are entirely rendered.

53 Tithes and revenues of the clergy taken away.

Several succeeding days were necessary to form into laws the decrees of the 4th August, and commitees were appointed to make out reports for that purpose. One of these reports having included the tithes and revenues of the clergy among the abuses that were to be done away, and having proposed in lieu of them to grant a certain stipend to the different ministers of religion to be payable by the nation, the clergy attempted to make a stand in defence of their property, and violent debates ensued. In these they were ably supported by the Abbé Sieyes: but as the clergy had formerly deserted the nobles, so they were now in their turn abandoned to their fate by the hereditary aristocracy. The popular party had long regarded the wealth of the church as an easy resource for supplying the wants of the state.—Never was there a more complete proof of the influence of opinion over the affairs of men. The Catholic clergy of France, though possessed of more property than they enjoyed at the time when princes took up arms or laid them down at their command, now found so few defenders, that they were terrified into a voluntary surrender of all that they and their predecessors had possessed for ages. In their overthrow, they scarcely enjoyed even the barren honour of having fallen the last of those privileged orders that so long had ruled over this ancient kingdom. They and the nobles, and the king, still possessed their former titles and nominal dignity; but all of them were now subdued, and at the mercy of the commons of France, who speedily dismissed them at their pleasure.

54 New ministry appointed.

As a short season of tranquillity in the Court and the National Assembly succeeded these great popular sacrifices, the King laid hold of it as a fit opportunity for the appointment of a new ministry. They consisted of the Archbishop of Vienne, the Archbishop of Bourdeaux, M. Neckar, the Count de St Priest, Count de Montmorin, the Count de la Luzerne, and the Count de la Tour du Pin Paulin. M. Neckar, as minister of finance, having stated the distressed situation of the revenue, presented the plan of a loan of thirty millions of livres. But M. Mirabeau, from a spirit of rivalship, as it would seem, to M. Neckar, prevailed with the Assembly to alter and to narrow the conditions of it in such a degree that very few subscribers were found, and the loan could not be filled up. This failure involved the Assembly in a considerable degree of unpopularity; in consequence of which they allowed M. Neckar to prescribe his own terms for the purpose of obtaining a loan of eighty millions. But the happy instant of public confidence had been allowed to pass away, and this loan was never more than half filled up. Recourse was next had to patriotic contributions; and great numbers of gold rings, silver buckles, and pieces of plate, were presented to the Assembly. The Royal family themselves sent their plate to the mint, either to give countenance to these donations, or, as M. Neckar has since asserted, through absolute necessity, for the purpose of supporting themselves and their family. The confusion into which the nation had been thrown by the late events had produced a suspension of the payment of all taxes. There existed, in fact, no efficient government; and if society escaped entire dissolution, it was merely in consequence of those habits of order which are produced by a state of long continued civilization. The business of government could not be transacted without money, and many vain efforts were made by the ministry to procure it. At length M. Neckar was driven to the desperate resource of proposing a *compulsory loan*, or that every individual possessed of property should advance to the state a sum equal to one-fourth of his annual income. This bold proposition was supported by Mirabeau, and adopted by the Assembly; but it does not appear to have ever been effectually executed.

55 Who find great difficulty in raising money.

56 Discussion on the *Rights of Man*.

In the mean time, the Assembly was busily occupied in framing the celebrated declaration of the *Rights of Man*, which was afterwards prefixed to the new constitution. This was followed by the discussion of a point of much delicacy and difficulty; viz. What share of legislative authority the king ought to possess under the new constitution; whether an absolute negative or *veto*, a suspensive *veto*, or no *veto* at all? This question operated like a touchstone for trying the sentiments of every person; and the assembly, consisting of 1200 men, was now seen to arrange itself into two violent contending factions. The debates were vehement and tumultuous, and continued for many days. As the assembly sat in public, and as multitudes of people of all descriptions were admitted into the galleries, and even into the body of the hall among the members, many indecent scenes took place in consequence of the interference of the spectators to applaud or censure the sentiments which were delivered. Thus the public at large became speedily interested in the discussion; the city of Paris took a side in opposition to the *veto*, and the whole empire was thrown into agitation by new and speculative questions. The distinguished place which France holds among the nations of Europe rendered these singular events and discussions the object of universal attention. The contagious love of novelty spread rapidly abroad, and gave rise to that well-founded jealousy on the part of the monarchs of Europe, which

57 And the king's *veto*.

was

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was speedily to burst forth in a bloody tempest.—In the present case, the people of Paris became most eagerly interested. Rumours of plots were spread through the country, and a new storm was obviously gathering, when the question was thus got quit of. M. Mounier remarked, that the executive power could possess no negative against the decrees of the present assembly, which had been nominated by the nation with supreme powers for the express purpose of framing a constitution, which was to remain binding over all orders of men in the state; and with regard to future legislatures, the king declared by a message, that he wished to possess no more than a *suspensive veto*. It is remarkable that the popular Mirabeau concluded a speech in favour of the absolute *veto* of the crown with these words, "That it would be better to live in Constantinople than in France, if laws could be made without the royal sanction." This political adventurer is, however, accused of having taken care to circulate in Paris a report that he had opposed the *veto* with all his influence; and to give credit to the story, he is said to have quitted the assembly just before the division, that his vote might not appear on record against it.

58 Discussion about the legislative body, whether it ought to consist of one or two chambers.

In the debates about the *veto* the month of August was spent; and in the beginning of September a new constitutional question was presented to the assembly by one of its numerous committees. This was, Whether the legislative body ought to consist of one or of two chambers? Mounier, Lally, Tollendal, Clermont Tonnerre, and others, who were zealous lovers of freedom upon what were then accounted moderate principles, supported eagerly the idea of establishing two independent chambers in imitation of the British constitution; but they were deserted both by the democratic and aristocratic parties. The first of these regarded an upper house or senate as a refuge for the old aristocracy, or as the cradle of a new one; while the higher nobles and clergy feared lest such an arrangement might prevent the future re-establishment of the ancient division into three orders. Of 1000 members who voted, only 89 supported the proposal for dividing the legislature into two chambers.

59 The royal sanction granted to the decrees of the 4th August, &c.

Soon after this, the king gave his sanction to the important decrees of the 4th of August, but not without some hesitation, and expressing doubts of the wisdom of some of them in a letter to the assembly. At the same time the *inviolability* of the person of the monarch was decreed, the indivisibility of the throne, and its hereditary descent from male to male in the reigning family.—But we shall not here attempt to enter into a detail of the various articles of the new constitution as connected with the circumstances under which they became the subject of debate. We shall only state those more remarkable circumstances which tend to ascertain the peculiar changes which the sentiments of the nation underwent in the progress of a revolution the most remarkable that occurs in human history.

60 State of parties in Paris.

In consequence of the debates upon the questions of the *veto* and the two chambers, the minds of parties had become much irritated. Paris wore the same threatening aspect that it had done in the months of June and of July preceding; and every thing seemed tending towards an important crisis. The aristocratic party accused their antagonists of a design to excite new insurrections; and the charge was retorted, by circulating a report that a plot for conveying the king to Metz was already ripe for execution.

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61 Consequences of the mutual jealousies.

From the period of the defection of the French guards, who were now in the pay of the capital, the protection of the royal family had been entrusted to the militia or national guard of Versailles, together with the regiment of the *gardes du corps*, which was composed entirely of gentlemen. Upon the circulation of the report of the intended flight of the king, the French guards began to wish to be restored to their ancient employment of attending his person, for the purpose of preventing any attempt of this nature. This idea was eagerly cherished by the capital; and, in spite of every effort used by M. de la Fayette, the obvious appearance of approaching disturbances could not be prevented. The popular party saw the advantages which they would derive from placing the assembly and the king in the midst of that turbulent metropolis which had given birth to the revolution, and upon the attachment of which they could most securely depend. Every encouragement was therefore given by the most active leaders of what was now called the *Democratic* party to the project of establishing the court at Paris. The ministry were under no small degree of alarm; and the count d' Estaing, who commanded the national guard of Versailles, requested the aid of an additional regiment. The regiment of Flanders was accordingly sent for: its arrival caused no small degree of anxiety; and every effort was instantly made to gain over both officers and soldiers to the popular cause.

On the first of October the garde du corps, probably for the purpose of ingratiating themselves with the newly arrived regiment, and perhaps to attach them more steadily to the royal cause, invited the officers of the regiment of Flanders to a public entertainment. Several officers of the national guard, and others of the military, were invited. The entertainment was given in the opera house adjoining to the palace; several loyal toasts were drank: but it is asserted, that when the favourite popular toast *The Nation* was given, it was rejected by the gardes du corps. In ordinary cases, such a trifling circumstance as this, or even any other of the transactions of a night of festivity, would justly be regarded as unworthy of notice in recording the more remarkable events in the history of a great nation; but such was now the singular state of affairs, that the most trivial occurrences were instrumental, by their combination, in the production of important consequences. The queen, having seen from a window of the palace the gaiety which prevailed among the military, prevailed with the king, who was just returned from hunting, to visit them along with herself and the dauphin. Their sudden appearance in the saloon kindled in an instant the ancient enthusiasm of French loyalty. The grenadiers of the regiment of Flanders, along with the Swiss chasseurs, had been admitted to the desert; and they, as well as their officers, drank the health of the King, Queen, and Dauphin, with their swords drawn. The royal family having bowed with politeness to the company, retired.—Of all nations, the French are most liable to the influence of sudden impressions: the music played the favourite air, *O Ricard! O mon Roi! l'univers t'abandonne*, "O Richard! O my king! the world abandons thee." In the eagerness of loyalty,

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loyalty, the national cockade, which had been adopted by some of the gardes du corps, was thrown aside, and white cockades were supplied as quickly as they could be made by the ladies of the court.

When these events were next day reported at Paris, accompanied by a multitude of exaggerations, they gave rise to the most violent alarm. The capital was at that time suffering all the horrors of famine; and in such a situation, the news of a feast which others have enjoyed, seldom gives much pleasure to hungry men. To the former report of an intended flight on the part of the royal family, it was now added, that a counter revolution was speedily to be attempted by force of arms; and that the present scarcity was artificially created by the court for the purpose of reducing the people to submission. Their aristocratic antagonists have since asserted, that the famine was indeed artificial; but that it was created by a portion of the violent party in the national assembly, which was then denominated the *Cabal*, whose object was to excite commotions as the means of procuring an opportunity of setting the duke of Orleans at the head of the state, either as regent, or in some other form. To this last party Mirabeau is said to have belonged.

For four days no notice was taken in the assembly of what had passed at the entertainment given by the gardes du corps. On the 5th of October M. Petion mentioned it for the first time, and a violent debate ensued; during which Mirabeau rose and exclaimed, "Declare that the king's person *alone* is sacred, and I myself will bring forward an impeachment;" thereby alluding to the conduct of the queen. While this debate was proceeding at Versailles, the city of Paris was in commotion. A vast multitude of women of the lowest rank, with some men in womens clothes, had assembled at the *Hotel de Ville*, and were calling aloud for arms and bread. They resolved to proceed instantly to Versailles to demand bread from the king and from the national assembly. La Fayette opposed them in vain; for his own soldiers refused to turn their bayonets against the women. Upon this one Stanislaus Maillard, who had distinguished himself at the taking of the Bastile, offered himself as a leader to the insurgents. He had the address to prevail with them to lay aside such arms as they had procured; and he set out for Versailles about noon with as much order among his followers as could well be expected from such an assemblage. Either because the passion for going to Versailles had suddenly become too infectious to be resisted, or because the multitude already gone thither was now accounted dangerous, the mayor and municipality of Paris thought fit to give orders to la Fayette instantly to set out for that place at the head of the national guard.

62 multitude of women of the lowest rank march to Versailles.

In the mean time, Maillard approached Versailles with his tumultuous troop; he arranged them in three divisions, and persuaded them to behave with tolerable decency. The king was hunting in the woods of Mendon when he was informed of the arrival of a most formidable band of women calling aloud for bread. "Alas! (replied he) if I had it, I should not wait to be asked." Maillard entered the assembly accompanied by a deputation of his followers to state the object of their journey. The assembly, to pacify them, sent a deputation of their own number along with them to lay their complaints before the king. His majesty received the whole with great politeness, and readily agreed to go into any measures for the supply of the capital that could be suggested. The report of this behaviour had such an effect upon the multitude collected around the palace, that they began to disperse; but they were speedily succeeded by another croud not less numerous. A sudden resolution of flight seems now to have been proposed by the court; for the king's carriages were brought to the gate of the palace which communicates with the Orangry: but the national guard of Versailles refused to allow them to pass, and the king himself refused to remove, or to allow any blood to be shed in his cause.

63 Maillard and a deputation to the assembly.

La Fayette with his army at length arrived about 10 o'clock at night, and found the assembly in a very unpleasant situation. Their hall and galleries were crowded by the Parisian fish-women and others of the mob, who, at every instant, interrupted the debates. La Fayette waited upon the king, and informed him of the proceedings of the day, planted guards in every quarter; and after a scanty banquet had been procured for the multitude, he prevailed with the assembly to close their sitting for the night. In this last part of his conduct M. la Fayette has been much censured, and probably not without reason; for it could scarcely be expected that such a night would be spent in peace by the immense assemblage of turbulent characters that were now brought together. All was quiet, however, till about six in the morning of the 6th, when a great number of women and desperate persons rushed forward to the palace, and attempted to force their way into it. Two of the gardes du corps were killed; the croud ascended the stair-case leading to the queen's apartment, but were bravely resisted by M. Miemandre a sentinel, who gave the alarm, and defended his post till he fell covered with wounds, of which, however, he afterwards fortunately recovered. The ruffians, reeking with his blood, rushed into the chamber of the queen, and pierced with bayonets and poniards the bed whence this persecuted woman had but just time to fly almost naked, and, through ways unknown to the murderers, had escaped to seek refuge at the feet of the king, who was already alarmed, and had gone to seek her.

64 La Fayette with his army reaches Versailles at night.

65 Desperate attempt on the queen.

The tumult became more violent every moment, and sudden death seemed to threaten the royal family; but la Fayette was by this time at the head of his troops, whom he beseeched earnestly to save the gardes du corps from massacre. In this he was successful; some that had been taken prisoners were surrounded by the grenadiers of the French guards who protected them, and the retreat of the whole corps was easily secured. The croud was speedily driven from the different quarters of the palace, which they were already beginning to pillage; and the royal family ventured to show themselves at a balcony. A few voices now exclaimed, *Le Roi à Paris*, "the King to Paris." The shout became general; and the king, after consulting with la Fayette, declared that he had no objection to take up his residence at Paris, provided he was accompanied by the queen and his children. When the proposal was reported to the assembly, the popular leaders expressed much satisfaction. They ordered a deputation of 100 members to attend the king thither; they voted the national assembly inseparable from the king. His majesty

66 The royal family saved by Fayette.

French Revolution, 1789.

67 Are carried prisoners to Paris.

set out at two o'clock a prisoner in the custody of the mob. Two gentlemen were selected from his body guard, and, with all the parade of an execution, beheaded in the court of his palace. Their heads were stuck upon spears, and led the procession; whilst the royal captives who followed in the train, and beheld this spectacle, were conducted so slowly, that a short journey of twelve miles was protracted to six hours. The king, the queen, and their children, were lodged in the old palace of the Louvre, while Monsieur went to reside at the Luxemburg. The city was illuminated, and the evening spent in triumph by the Parisians.

68 Triumph of the popular party.

The removal of the king to Paris was regarded as a triumph by the popular party. The higher order of nobles considered it as completely ruinous to their hopes; and even many men of talents, such as Mounier and Lally Tollendal, whom we cannot avoid regarding as friends to the popular cause in its out-set, now regarded every prospect of attaining a happy constitutional freedom as at an end, as the national representatives must be for ever exposed to the insults, and overawed by the influence, of a turbulent capital. Many members of the assembly took refuge in foreign countries, and used every effort to excite the other nations of Europe to hostility against France. As the duke of Orleans had been regarded as a chief agent in promoting the late disturbances, the marquis de la Fayette waited upon him, and insisted upon his leaving the kingdom for a time. The duke was overawed, and, on pretence of public business, went to England, where he remained for several months.

69 The assembly holds its first session at Paris.

On the 19th of October, the National Assembly held its first session in Paris. The King was closely guarded in his own palace; and no apparent opposition now stood in the way to prevent the popular party from giving to their country such a constitution as they might judge expedient. Much, however, was yet to be done, and many difficulties remained, resulting from the habits of men educated under a very different order of things. Two days after the Assembly came to Paris, a baker was publicly executed by the mob, upon a false accusation of having concealed a quantity of bread.—While the Assembly was at a distance, events of this nature had been little attended to, and the leading party avoided attempting to check these ebullitions of popular violence, from which they had derived so much advantage; but that party was now all-powerful, and so flagrant an offence committed against the law was regarded as an insult upon the sovereignty of the National Assembly. Two leaders of the mob were therefore tried and publicly executed, and a severe law was passed, of the nature of the British riot act, authorising the magistrates to act by military force against any multitude of persons that should refuse to disperse. Thus the peace of the capital was secured for several months; but in the country at large no small degree of anxiety and trouble still subsisted. The same suspicious temper which had prevailed at Paris agitated the provinces with the dread of plots and monopolies of grain. Add to this, that the noblesse in the country were by no means satisfied with the liberality with which their representatives had on the 4th of August voted away their privileges and their property. This produced violent jealousies between the peasants and their lords, and gradually conveyed to every corner of the kingdom the political ferment which had commenced at Paris.

French Revolution, 1789.

70 The kingdom divided into 83 departments.

The National Assembly being now, however, in tolerable security, proceeded in the arduous attempt of forming a free constitution for the great empire of France. The Abbé Sieyes presented a plan for dividing the kingdom into 83 *departments*, of about 324 square leagues, and of each department into several *districts*, and each district was subdivided into *cantons* of four square leagues in extent. Thus the whole of the ancient divisions of the kingdom into governments, generalities, and bailiewicks, was in an instant obliterated. An attempt was also made to simplify in an equal degree the relative situation of individuals in civil life, by a decree which put an end to all distinction of orders and immunities, so far as any privilege whatever was concerned. At the same time, a bold and most important measure was adopted, which has since proved the organ of those terrible efforts which France has been enabled to make against the rest of Europe. This was the confiscation of the whole of the lands belonging to the church, for the purpose of supplying the exigencies of the state. In this transaction, all regard to justice was thrown aside. The lands of the church were as certainly the property of the then possessors of them as any entailed estate among us is the property of him who occupies it. The state may have had a right to appropriate to itself the church lands upon the death of the incumbents; but it might with equal justice, and perhaps greater propriety, have seized the enormous revenues of the Duke of Orleans, as have confiscated a single acre belonging to the most useless abbot without his own consent. This nefarious measure was proposed by the bishop of Autun, M. Tallegrand Perigord, a man of no religion, who had been promoted to the bench in a most irregular manner to serve this very purpose. The mode in which this property was to be expended was by issuing assignments *(assignats)* upon it; which assignments were to be received by the state for the payment of taxes, or for the purchase of church lands when set up to sale. A provision was at the same time made for the national clergy, who were for the future to be paid by the state. On the day following that on which this important measure was adopted, a decree was passed, suspending the parliaments of the kingdom from the exercise of their functions.

71 The church lands confiscated.

72 Fruitless attempts of the parliaments.

Decrees, in which the interests of so vast a multitude of individuals were involved, could not be carried into effect without much murmuring and opposition. The parliaments, in particular, began to exert themselves with vigour, and, by protests and other publications, attempted to invalidate the decrees of the Assembly as illegal; but these privileged bodies, who had often been accustomed to contend with some success against the despotic administration of their country, and on that account had been for ages the objects of public applause, now found themselves utterly forsaken, and unable to resist the mandate of a popular Assembly. After a few fruitless struggles, they were all of them under the necessity of submitting to their fate.

73 Municipalities established, &c.

Nothing remarkable now occurred for some time.—The Assembly proceeded to organize the kingdom by the establishment of municipalities, and by reforming the jurisprudence of the country. It is to be observed, however, that when the parliament of Paris was abolished,

lished, the Chatelet, being the second court in that city, was retained for the purpose of trying those persons who had become most obnoxious by their attachment to the royal cause. This court had the spirit to acquit the Baron de Bezenval, Marshal Broglio, and the Prince de Lambesq. But having incurred much popular odium on this account, they were guilty of the unworthy meanness of condemning to death the Marquis de Favres, for a pretended conspiracy (of which no tolerable proof was ever brought) to massacre La Fayette, Bailly, and Neckar, and to convey the King to Peronne.

During the whole of this winter the King had been very strictly watched by numerous guards placed around his palace, insomuch that the other nations of Europe considered him as in a state of captivity. To do away this impression, if possible, and to make their king appear a voluntary agent in the measures that had lately been adopted, was now regarded as a matter of some importance. Every effort was therefore made to prevail with him to come to the Assembly suddenly, and, as it were, of his own voluntary motion, there to declare his adherence to the measures which had lately been adopted. For some time he resisted this proposal; but at length, on the 4th of February, he did suddenly appear in the National Assembly, where he complained of the attempts that had been made to shake the new constitution. He declared his wish "that it should be universally known that the monarch and the representatives of the nation were united, and their wishes were the same; that he would defend the constitutional liberty of the state; that, in conjunction with the Queen, he would early form the sentiments of his son for that new order of things which the circumstances of the empire had introduced." This declaration dispirited the aristocratic party in no small degree, and increased that unhappy tendency of looking for aid from foreign countries which they had always been too apt to indulge.

On the 13th of February, monastic establishments were suppressed, and their lands confiscated; but the present friars and nuns were allowed pensions for their subsistence, and to continue the observance of their monastic vows, if they thought fit. We may observe here, that, in consequence of the evacuation of the monasteries, it is probable that about this time the *Breton* committee began to assume the appellation of the *Jacobin Club*, from the hall belonging to the Jacobin friars at Paris, in which their meetings were now held.

An event occurred at this time which tended in no small degree to increase the odium under which the old government already laboured. This was the publication of the *Red Book*, or list of pensions and donations granted by the crown. In consequence of the most pressing instances, it had been communicated by M. Neckar to a committee of the Assembly, after many intreaties, and the most solemn promises of secrecy. It afforded, however, too striking an advantage to the popular party not to be made use of, and in a few days M. Neckar, to his no small surprise, saw this register publicly sold by every bookseller in Paris. He ought not, indeed, to have been surprised; and the giving up of this list is one of the many proofs which the transactions of that period afford of his great unfitness for the office which he held. With much indignation, however, he demanded why the committee had published it without the permission of the Assembly or the King? But he was told by the committee, that "as to the Assembly, they were sure of its approbation; and as to the King, they were not his representatives." To give an idea of the effect of this publication, it is only necessary to remark, that, under the short administration of M. Calonne, the two brothers of the King had received from the public treasury, independent of their legitimate income, nearly two millions sterling, and that L. 600,000 had been granted to an individual, because he was the husband of Madame de Polignac. M. Neckar's opposition to this publication tended in no small degree to injure his popularity, and the rest of the ministry began to lose the confidence of the public. Indeed, at this time, fertile causes of alarm prevailed on all sides. The clergy were attempting to revive in the provinces the ancient animosities between the Roman Catholics and the Protestants, ascribing the late decrees of the Assembly to the latter. The German Princes possessed property in the north of France were complaining loudly of the violation of their rights by the abolition of the feudal system, although the National Assembly had voted to them a compensation. The most melancholy intelligence was received from their colonies in the West Indies. In regulating these, the Assembly had not recognized the right of the free negroes to enjoy the same privileges with other citizens; at the same time, they did not go the length of denying these privileges. This uncertain conduct produced infinite calamities. The whites contended with those commonly called *people of colour*. These again sometimes stood in opposition to the free negroes, or to the slaves; and hence it sometimes happened that no less than three hostile assemblies were held at the same time in the same colony, which made war upon each other with the most inveterate fury. Each party found protectors in the National Assembly of the parent state. Those who favoured or opposed the existence of distinctions at home, in general followed out the same principle with regard to the colonies.

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76 Effect of its publication.

77 Numerous sources of alarm.

78 Debate on the royal power to declare peace and war.

On the 14th of May, M. de Montmorency communicated to the National Assembly the preparations for war in which England and Spain were engaged. This brought forward the constitutional question, "Who ought to possess the power of declaring peace and war? The Count Clermont Tonnerre, Messrs de Serent, Virieu, and Dupont, supported the royal prerogative; while on the other side, the exclusive right of the legislative body to exercise this important prerogative was supported by Messrs d'Aiguillon, Garat jun. Freteau, Jellot, Charles Lameth, Sillery, Petion, Robespierre, &c. M. Petion proposed a decree "that the French nation renounced for ever all idea of conquest, and confined itself entirely to defensive war;" which was passed with universal acclamation. The Count de Mirabeau at length successfully proposed that peace and war should be declared by the king and the legislative body in conjunction; and the decree that was passed on the subject is a strange farrago of contradictions and absurdities. It enjoined the King to "guard the state from external attacks." But how could this be done, without repelling any attack that might be made upon it? This, however, he could not do, without previously informing the National Assembly; and if that body chanced

not

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not to be sitting at the time, he was bound to let the enemy advance without opposition till he had convened his orators, dispersed over 24,000 square leagues, and listened to their metaphysical quibbles in Paris.

79 Farce acted in the assembly by a Prussian refugee, &c.

On the 19th June, a very singular farce was acted in the Assembly. A Prussian refugee, who called himself Anacharsis Clouts, and who was struggling hard to bring himself into public notice, on an evening sitting (which, it is to be observed, was generally ill attended by the persons of the highest rank), introduced to the Assembly a number of persons dressed in the different habits of all the different countries that could be thought of. In a formal harangue, he told the Assembly that he was come, as the *orator of the human race*, at the head of the representatives of all nations, to congratulate them upon the formation of their new constitution. He was answered by the President with abundance of solemnity, and retired with his motley groupe. This fantastical piece of folly, which in any other country than France would scarcely, perhaps, have excited a smile, was treated by the Assembly in a serious light. Alexander Lameth proposed, that the figures of different nations exhibited in chains at the feet of Louis XIV. should be destroyed as an insult upon mankind.

80 Abolition of hereditary titles.

M. Lambel, a lawyer, at this moment proposed the *abolition of all hereditary titles*. He was supported by La Fayette, St Fargeau, and the Viscount de Noailles. The decree was passed, along with another suppressing all armorial bearings. It is our intention at present rather to state facts than to hazard any political opinion concerning the wisdom or folly of the transactions which we record. It may here, however, be remarked, that no part of the proceedings of the French National Assembly was received by persons of rank upon the Continent of Europe with so much indignation as this.—The feudal system had been overturned, and the property of the church wrested from it, with little comparative notice; but when those nominal distinctions were attacked which antiquity had sanctioned, and personal vanity rendered dear, the surrounding nations were instantly alarmed, and beheld with terror the levelling precedent. We may likewise add, that no part of their proceedings was more inimical to rational and practical freedom. To preserve a perfect equality of ranks is impossible. In a commercial nation, industry will procure wealth, and wealth will every where procure dependents. Now nothing more contributes to keep within some tolerable bounds the insolence of newly acquired wealth, than the rank attached to birth and nobility, which time and prejudice have conspired to make respectable. It is not a little remarkable, that of all the King's ministers, Neckar alone, a plebeian, a republican, born and bred in a democracy, advised his Majesty to refuse his assent to this foolish decree, as a violent but useless encroachment upon the prejudices of a powerful order of the state.

81 Proposal to commemorate the taking of the Bastile.

In the mean time, the capital was entirely engrossed by hurry and bustle. M. Bailly had proposed a plan for commemorating the anniversary of the taking of the Bastile. It was adopted, because it flattered the vanity of the people, by presenting them with a splendid spectacle in commemoration of their own exertions. —The army had been much disorganized; and it was resolved to attempt to unite all its branches, as well as the whole departments of the state, in one common attachment to the new order of things, by collecting into one place deputations, for the purpose of swearing fidelity to the new constitution. In the middle of the Champ de Mars an altar was erected, at which the civic oath, as it was called, was to be taken. Around the altar an amphitheatre was thrown up capable of containing 400,000 spectators; 2000 workmen were employed in this operation; and the people of Paris, fearing lest the plan might not be completed, assisted in the labour. All ranks of persons, the nobles, clergy, and even ladies, with the eagerness for novelty so peculiar to that people, united their efforts. Crowds of foreigners as well as natives hurried to the capital to be present at this solemnity, which was called the *Confederation*. The long-expected 14th of July at length arrived. At six o'clock in the morning the procession was arranged on the Boulevards, and consisted of the electors of the city of Paris, the representatives of the commons, the administrators of the municipality, a battalion of children, with a standard, inscribed "The hopes of the nation;" deputies from the troops of France wherever quartered, and of every order, along with deputies from all the departments; to these were added immense detachments of the military, and of the national guards, along with an almost infinite multitude of drums, trumpets, and musical instruments. The procession was extremely splendid, as every district had its peculiar decorations. The national assembly passed through a grand triumphal arch, and the king and queen, attended by the foreign ministers, were placed in a superb box. After a solemn invocation to God, the King approached the altar, and, amidst the deepest silence, took the following oath: "I the King of the French do swear to the nation, that I will employ the whole power delegated to me by the constitutional law of the state, to maintain the constitution, and enforce the execution of the law." The president of the national assembly then went up to the altar, and took the civic oath, "I swear to be faithful to the nation, the law, and the king; and to maintain with all my powers the constitution decreed by the national assembly, and accepted by the king." Every member of the assembly standing up, said, "That I swear." La Fayette then advancing, took the oath for himself; the other deputies of the national guards pronouncing after him, "That I swear;" and these words were solemnly pronounced by every individual of this immense assembly. *Te Deum* was then sung. The performance was sublime beyond the powers of description. Never perhaps before was there such an orchestra, or such an audience: their numbers baffled the eye to reckon, and their shouts in full chorus rent the skies. It is impossible to enumerate all the means which were employed to add splendor to this day. It ended with a general illumination, and no accident disturbed the public tranquillity.

The assembly now proceeded in the formation of the constitution with considerable tranquillity; which, however, was disturbed by an unhappy event at Nancy. Most of the officers of the army were unfriendly to the late revolution, and every means had been employed by them to disgust the soldiers with it. At Nancy, in particular, necessaries had been denied them, and their pay was kept back, under pretence that this was the will of the national assembly. Driven to despair, the regiments in garrison threw off their allegiance, and demanded

manded loudly the regimental accounts. They seized at the same time the military chest, and sent a deputation to state their case at Paris to the national assembly. But the officers were before-hand, and prepossessed the minister of war against them; upon whose representation a decree was passed, authorising the commander in chief of the province, M. Bouillé, to reduce the insurgents by force. This was no sooner known, than the national guard of Nancy assembled, and sent a deputation to give a fair statement of facts. But Bouillé, without waiting the result of an explanation, hastened to Nancy at the head of all the troops he could suddenly collect; and having fallen upon the regiments of Chateauvieux and Mestre de Camp, after putting an immense multitude to the sword, he took 400 prisoners.

The King's regiment was prevented from acting against Bouillé by the intrepidity of a young officer of the name of *Deffilles*, who, however, died of the wounds which he received on the occasion. The news of these events filled Paris with indignation. The assembly afterwards reversed its own decrees against the insurgents at Nancy. Public honours were decreed to the memory of Deffilles; but Bouillé could not be punished, because he had only acted in obedience to authority.

M. Necker's popularity had been gradually declining, as he was unwilling to go all the lengths that the ruling party wished. He gave in his resignation on the 4th of September, and speedily thereafter left the kingdom. He was regretted by no party. He was regarded, on the one side, as having conducted the kingdom to its ruin, by the concessions which he originally advised the king to make in favour of the *tiers etat*; while he was despised by the opposite party as a lukewarm politician, of narrow views, and a feeble mind. He departed, however, with the unblemished reputation of strict integrity. M. Necker does not seem to have penetrated deeply into the characters of men, or to have had any conception of the effects of that terrible and restless energy which is called forth in a nation which attempts to make important changes in its ancient manners and government. Having no conception of the important era which was about to open upon that country of which he was the minister, he was far from being qualified to direct or controul it amidst the convulsions which it was destined to encounter. Unable to brook the loss of his popularity, he peevishly retired to Swisserland, where he published a work, which shows to the conviction of every unprejudiced reader the integrity of the French king, and the wicked projects of the leading democrates, whom he himself had armed with power.

The remaining part of this year was occupied in attempts to introduce some degree of subordination into the navy of France, which had been much disorganized, and in farther regulating the affairs of the clergy. It was now declared, that such clergymen as should not take the following oath, which had been prescribed some months before, should be considered as ejected from their benefices: "To watch carefully over the faithful in the parish or diocese which was entrusted to his care; to be faithful to the nation, the law, and the king; and to maintain to the utmost of his power the new constitution of France, and particularly the decrees relative to the civil constitution of the clergy." This decree rendered the situation of conscientious men extremely perplexing; especially as the pope testified in marked terms his disapprobation of the oath. The people were reduced to the dilemma of choosing between their new political and their old religious prejudices, and the result was extremely unfavourable to the interest of religion.

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1791. 86 Hostile appearances in Germany, &c.

The assembly commenced the new year with a decree, announcing the termination of its session, which was to take place as soon as it should have finished the discussion of a list of constitutional articles. In the mean time, on the side of Germany, Spain, Italy, and Savoy, hostile appearances began to be exhibited, and bodies of troops advanced around the French frontier. The Emperor Leopold was, however, too cautious to announce his intentions; and the King soon communicated a letter from him, containing protestations of amicable dispositions, but adding, that "the innovations occasioned by the decrees of the 4th of August ought to be done away." The King treated this merely as an official measure on the part of the Emperor, that he might not appear to renounce the claims of certain German princes connected with Lorraine and Alsace. But the assembly expressed some alarm, and voted an augmentation of the national force. About this period several new efforts were made by the disaffected clergy in various parts of the kingdom to excite disturbances, which it is unnecessary to mention in detail.

87 Departure of the king's aunts from Paris.

On the 20th of February the public attention was roused by a circumstance that in any other state of affairs would have been accounted unimportant. The King announced to the assembly, that his aunts, the daughters of Louis XV. had that morning left Paris; but as he did not apprehend that the existing laws laid them under any restraint in this respect, he had not opposed their departure. After some debate, the assembly agreed that the King had judged well; and these princesses were left to pursue their journey to Rome, which they reached after some delays occasioned by the jealousy of certain municipalities through which they passed. Thus the kingdom was gradually deserted by every branch of the royal family, excepting the King and his eldest brother Monsieur. The assembly, however, continued its labours with considerable quietness.

88 Death of Mirabeau.

In the end of the month of March died the celebrated M. de Mirabeau, at the age of 42 years; a man whose integrity has for many good reasons been much suspected, but whose political address and intrepidity, and whose splendid powers of eloquence, have been seldom equalled. He received from his countrymen at his death marks of respect unparalleled in modern history. During his short illness, his door was besieged by anxious citizens. A mourning of eight days was decreed by the assembly, and also a grand procession, which was attended by all the public functionaries. He was the first who was interred in the new magnificent Pantheon, consecrated to the reception of the remains of illustrious men. But his ashes were afterwards removed, in consequence of very clear proofs that he had not been incorruptible by money.

89 An emigrant army assembled on the borders of Alsace.

During the whole of this spring, much fear was entertained that some attempts at a counter revolution were about to be made. The emigrant army assembled on the borders of Alsace was reviewed by the prince of Condé. Their uniform was black, faced with yellow, with

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with a death's head, surrounded by a laurel wreath on one cuff, and a sword on the other; with the motto, "Conquer or die." The king was also surrounded by crowds of nonjuring priests and other disaffected persons. Thus, that popular jealousy which in every period of the revolution has strikingly marked the French character, was kept on the alarm. On the 18th of April, therefore, when the royal family was preparing to go to St Cloud to pass some days, a report was instantly spread that the king was about to fly from the country. The carriages were immediately surrounded by people. La Fayette drew out the national guard, but they refused to act. "We know (exclaimed they) that we are violating the laws, but the safety of our country is the first law." The King instantly went to the assembly, and with much spirit complained of the insult. He was answered respectfully by the president, and continued his journey. As the royal family had enjoyed a considerable degree of freedom for some time past, which was demonstrated by the unsuccessful opposition made to this journey—the present opportunity was embraced for intimating to foreign courts his acceptance of the constitution; and all obnoxious persons were dismissed from about his person. The breach of discipline on the part of the national guard on this occasion was so much resented by La Fayette, that he resigned his command. Paris was thrown into consternation; and it was not till after the most universal solicitation that he was prevailed upon to resume his office.

92 Jealousy of the people and military lest the king and his family should emigrate.

91 Behaviour of Bouillé on the frontiers.

About this time M. de Bouillé, to whom the protection of the frontiers was entrusted, was employing, as it is now said, every means in his power to render the country defenceless. The garrisons were left unprovided; dissunion was spread among the national troops; they were removed from the frontiers, and their place was occupied by foreigners, wherever it could be done. The emigrants abroad, and their friends at home, were lying in wait for an opportunity of revolt;—when suddenly, on the 21st of June, it was announced from the Thuilleries, that the king, the queen, the dauphin, with monsieur and madame, had quitted the palace and the capital, without leaving any information of their intention or their route. The emotion excited by this news among the multitude was a mixture of consternation and rage. The national assembly, however, acted with much coolness. They instantly took upon themselves the government, and decreed their sittings permanent. They sent messengers, at the same time, in all directions, to attempt to lay hold of the fugitives. These had taken different routs. Monsieur and madame arrived safely at Brussels on the 23d. The king, queen, and their children, when they came to a considerable distance from the capital, were furnished by Bouillé with a guard of dragoons, under pretence of protecting treasure for the pay of the troops. At the distance of 156 miles, and when only a few leagues from the frontiers, they were arrested at St Menehould by the postmaster, M. Drouet, formerly a dragoon in the regiment of Condé. At half past seven o'clock in the evening the carriages stopt to change horses at his house; he thought he recollected the queen, and imagined that the king's face resembled the impressions stamped upon assignats. The escort of dragoons increased the suspicion. He suffered them to depart at 11 o'clock without notice; but taking a companion with him, he went by a shorter road to Varennes. With the assistance of the postmaster there he gave the alarm, and overturned a carriage on the bridge, which detained the royal travellers till the national guard of the place had assembled, and the arrest was effected without bloodshed. They were brought back to Paris by a deputation from the assembly. At his departure, the king had imprudently left behind him a memorial, in which he declared, that he never had thought any sacrifice too great for the restoration of order; but that the destruction of the kingdom, and the triumph of anarchy, being the only reward of all his efforts, he thought it necessary to depart from it. He then takes a review of the faults of the new constitution, the grievances he has suffered; and protests against every thing that he had been compelled to do during his captivity.

92 The king, queen, and royal family, leave Paris.

93 Monsieur and madame arrive at Brussels.

Different parties were very differently affected by this ill-conducted and unfortunate flight of the King. A small republican party had already begun to appear, and during the king's absence, attempts were made to induce the public at large to consider the royal authority as no necessary part of a free constitution. But the minds of men were by no means prepared for the reception of this new doctrine. The idea, however, having been thus publicly proposed, left some impressions, which in time contributed to give rise to important events. By far the greater number of leading men, however, were at present convinced, that it was impossible to conduct a great empire like France, well and prosperously, without the assistance of an hereditary chief. They therefore determined to pass over the affair with as much silence as possible, and to hasten the period when their new constitution should be complete. But there is reason to believe, that this journey was at the long-run highly instrumental in producing very fatal effects to the personal safety of the monarch.

His flight seemed a signal for emigration. Many of the aristocratic party sent in resignations of their seats in the national assembly. Troops were levied on the frontiers in the King's name; who took care, however, to disavow any connection with such a procedure. Bouillé emigrated, and afterwards sent to the assembly a furious threatening letter: "You shall answer (says he) for the lives of the king and of the queen to all the monarchs of the universe. Touch but a single hair of their heads, and not one stone shall be left upon another in Paris. I know the roads. I will conduct the foreign armies. This letter is but the forerunner of the manifesto of the sovereigns of Europe."

A considerable calm throughout France followed these events, and it might be regarded as in a state of tranquillity. It contained, indeed, parties entertaining much animosity against each other, and many citizens had withdrawn to foreign countries; but the peace was not broken, and moderate men hoped that much prosperity would follow from the late agitations. But this calm was delusive; and in the midst of it those projects were formed which were afterwards to prove so fatal to the peace of France and of Europe. Towards the close of this summer, a convention took place at Pilnitz in Saxony between the emperor Leopold and the king of Prussia. Its object was not known at the time, but it gradually came into view, and is now by many understood

ſtood to have been intended for the purpoſe of concluding a league for the invaſion of France, the new-modelling of its government, and the partition of ſome of its fairſt provinces. The following paper has been repeatedly publiſhed as the copy of a treaty concluded and ſigned at Pavia, and is generally underſtood to have been identical with, and therefore known by, the name of the *Treaty of Pilnitz*. We are far from vouching for its authenticity. It may have been fabricated by the French aſſembly, to unite all parties in the nation againſt the foreign powers which threatened to invade them. But in ſtating the events of this revolution, it is perhaps ſtill more neceſſary, for the purpoſe of rendering the actions of men comprehenſible, to give an account of what was at the time *believed* to have occurred, than it now is to aſcertain what was actually true.

Partition Treaty between the Courts in Concert, concluded and ſigned at Pavia, in the Month of July 1791.

His majeſty the emperor will take all that Louis XIV. conquered in the Auſtrian Netherlands, will give them to his ſerene highneſs the elector Palatine; ſo that theſe new poſſeſſions, added to the Palatinate, may hereafter have the name of *Auſtraſia*.

His majeſty will preſerve for ever the property and poſſeſſion of Bavaria, to make in future an indiviſible maſs with the domains and hereditary poſſeſſions of the houſe of Auſtria.

Her ſerene highneſs the archducheſs Maria Chriſtina ſhall be, conjointly with his ſerene highneſs her nephew the archduke Charles, put into hereditary poſſeſſion of the duchy of Lorraine.

Alſace ſhall be reſtored to the empire; and the biſhop of Straſbourg, as well as the chapter, ſhall recover their ancient privileges, and the eccleſiaſtical ſovereigns of Germany ſhall do the ſame.

If the Swiſs Cantons conſent to accede to the coalition, it may be propoſed to them to annex to the Helvetic league the biſhopric of Porentrui, the defiles of Franche Comté, and even thoſe of Tyrol, with the neighbouring bailiwicks, as well as the territory of Verſoy, which interſects the Pays de Vaud.

Should his majeſty the king of Sardinia ſubſcribe to the coalition, La Breſſe, Le Bugey, and the Pays de Gex, uſurped by France from Savoy, ſhall be reſtored to him.

In caſe his Sardinian majeſty can make a grand diverſion, he ſhall be ſuffered to take Dauphiné, to belong to him for ever as the neareſt deſcendant of the ancient dauphins.

His majeſty the king of Spain ſhall have Rouſſillon and Bearn, with the iſland of Corſica; and he ſhall have the French part of the iſland of St Domingo.

Her majeſty the empreſs of all the Ruſſias ſhall take upon herſelf the invaſion of Poland, and at the ſame time retain Kaminiech, with that part of Padolia which borders on Moldavia.

His majeſty the emperor ſhall oblige the Porte to give up Choczim, as well as the ſmall forts of Servia, and thoſe on the river Lurna.

His majeſty the king of Pruſſia, by means of the above-mentioned invaſion of the empreſs of all the Ruſſias into Poland, ſhall make an acquiſition of Thorn and Dantzic, and there unite the Palatinate on the eaſt to the confines of Sileſia.

His majeſty the king of Pruſſia ſhall beſides acquire Luſace; and his ſerene highneſs the elector of Saxony ſhall in exchange receive the reſt of Poland, and occupy the throne as hereditary ſovereign. French Revolution, 1791.

His majeſty the preſent king of Poland ſhall abdicate the throne on receiving a ſuitable annuity.

His royal highneſs the elector of Saxony ſhall give his daughter in marriage to his ſerene highneſs the youngeſt ſon of his royal highneſs the grand duke of all the Ruſſias, who will be the father of the race of the hereditary kings of Poland and Lithuania. (Signed) LEOPOLD. PRINCE NASSAU. COUNT FLORIDA BLANCA. BISCHOFFSWERDER.

97 The new conſtitution concluded by the aſſembly.

In the mean time, the national aſſembly was haſtening faſt to the completion of the new conſtitution. It was finiſhed on the 3d of September, and preſented to the king. It begins with the following declaration of the rights of a man and a citizen, and thereafter follow the different branches; the chief of which are here tranſlated.

I. All men are born, and remain, free and equal in rights: ſocial diſtinctions cannot be founded but on common utility.

II. The end of all political aſſociations is the preſervation of the natural and impreſcriptible rights of man: theſe rights are liberty, property, ſecurity, and reſiſtance againſt oppreſſion.

III. The principle of *ſovereignty* reſides eſſentially in the nation: *no body* of *men*, no *individual*, can exerciſe an authority that does not emanate expreſsly from that ſource.

IV. *Liberty* conſiſts in the power of doing every thing except that which is hurtful to another: hence the exerciſe of the natural rights of every man has no other bounds than thoſe that are neceſſary to enſure to the other members of ſociety the enjoyment of the ſame rights: thoſe bounds can be determined by the law only.

V. The law has a right to forbid thoſe actions alone that are hurtful to ſociety. Whatever is not forbidden by the law, cannot be hindered; and no perſon can be conſtrained to do that which the law ordaineth not.

VI. The law is the expreſſion of the general will: all the citizens have a right to concur perſonally, or by their repreſentatives, to the formation of the law: it ought to be the ſame for all, whether it protect, or whether it puniſh. All citizens being equal in the eye of the law, are equally admiſſible to dignities, places, and public offices, according to their capacity, and without any other diſtinction but that of their virtue and their talents.

VII. No man can be accuſed, arreſted, or detained, except in caſes determined by the law, and according to the forms which the law hath preſcribed. Thoſe who ſolicit, diſpatch, execute, or cauſe to be executed, arbitrary orders, ought to be puniſhed; but every citizen that is ſummoned or ſeized in virtue of the law, ought to obey inſtantly—he becomes culpable by reſiſtance.

VIII. The law ought to eſtabliſh ſuch puniſhments only as are ſtrictly and evidently neceſſary; and no perſon can be puniſhed but in virtue of a law eſtabliſhed and promulgated prior to the offence, and legally applied.

IX. Every man being preſumed innocent till ſuch time

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time as he has been declared guilty, if it shall be deemed absolutely necessary to arrest a man, every kind of rigour employed, not necessary to secure his person, ought to be severely repressed by the law.

X. No person shall be molested for his opinions, even such as are religious, provided that the manifestation of those opinions does not disturb the public order established by the law.

XI. The free communication of thought, and of opinion, is one of the most precious rights of man. Every citizen, therefore, may freely speak, write, and publish, his sentiments; subject, however, to answer for the abuse of that liberty, in cases determined by the law.

XII. The guarantee of the Rights of Man and Citizens, involves a necessity of *public force*: this force is then instituted for the advantage of all, and not for the particular utility of those to whom it is confided.

XIII. For the maintenance of public force, and for the expences of administration, a common contribution is indispensably necessary: this contribution should be equally divided amongst all the citizens, in proportion to their abilities.

XIV. Every citizen has a right, by himself, or by his representatives, to decide concerning the necessity of the public contribution; to consent to it freely; to look after the employment of it; to determine the quantity, the distribution, the collection, and duration.

XV. The society has a right to demand from every public agent an account of his administration.

XVI. Every society, in which the guarantee of rights is not assured, nor the separation of powers determined, has *no constitution*.

XVII. Property being a right inviolable and sacred, no person can be deprived of it, except when the public necessity, legally ascertained, shall evidently require it, and on condition of a just and previous indemnification.

The constitution guarantees, as natural and civil rights,

1. That all citizens are admissible to places and employments without any distinction, but that of ability and virtue.

2. That all contributions shall be divided equally among all the citizens, in proportion to their means.

3. That the same crimes shall be subject to the same punishments, without any distinction of persons.

The constitution in like manner guarantees, as natural and civil rights,

Liberty to all men of going, staying, or departing, without being arrested, or detained, but according to the forms prescribed by the constitution.

Liberty to all men of speaking, writing, printing, and "publishing their thoughts, without having their writings subjected to any examination or inspection before publication;" and of exercising the religious worship to which they are attached.

Liberty to all citizens of assembling peaceably, and without arms, complying with the laws of police.

Liberty of addressing to all constitutional authorities petitions individually signed.

The constitution guarantees the inviolability of property, or a just and previous indemnity for that of which public necessity, legally proved, shall require the sacrifice.

A public instruction shall be created and organized, common to all citizens, gratuitous with regard to those parts of tuition indispensable for all men, and of which the establishment shall be gradually distributed in a proportion combined with the division of the kingdom.

"The kingdom is one and indivisible;" its territory, for administration, is distributed into 83 departments, each department into districts, each district into cantons.

Those are French citizens,

Who are born in France, of a French father;

Who having been born in France of a foreign father, have fixed their residence in the kingdom;

Who having been born in a foreign country, of a French father, have returned to settle in France, and have taken the civic oath:

In fine, who having been born in a foreign country; being descended in whatever degree from a Frenchman or a Frenchwoman, who have left their country from religious motives, come to reside in France, and take the civic oath.

The right of French citizenship is lost,

1st, By naturalization in a foreign country;

2dly, By being condemned to penalties which involve the civic degradation, provided the person condemned be not reinstated;

3dly, By a sentence of contumacy, provided the sentence be not annulled;

4thly, By initiation into any foreign order or body which supposes either proofs of nobility "or distinctions of birth, or requires religious vows."

"The law considers marriage only as a civil contract."

The sovereignty is one, indivisible, "inalienable, and imprescriptible," and it belongs to the nation: no section of the people, or individual, can arrogate the exercise of it.

The nation, from which alone flow all powers, cannot exercise them but by delegation.

The French constitution is representative: the representatives are the legislative body and the king.

The National Assembly, forming the legislative body, is permanent, and consists of one chamber only.

It shall be formed by new elections, every two years.

The legislative body cannot be dissolved by the king.

The number of representatives to the legislative body shall be 745, on account of the 83 departments of which the kingdom is composed; and independent of those that may be granted to the colonies.

The representatives shall be distributed among the 83 departments, according to the three proportions of land, of population, and the contribution direct.

Of the 745 representatives 247 are attached to the land. Of these each department shall nominate three, except the department of Paris, which shall nominate only one.

Two hundred and forty-nine representatives are attached to the population. The total mass of the active population of the kingdom is divided into 249 parts, and each department nominates as many of the deputies as it contains parts of the population.

Two hundred and forty-nine representatives are attached to the contribution direct. The sum total of the direct contribution of the kingdom is likewise divided into 249 parts; and each department nominates as many deputies as it pays parts of the contribution.

In order to form a legiſlative national aſſembly, the active citizens ſhall convene, in primary aſſemblies, every two years in the cities and cantons.

"The primary aſſemblies ſhall meet of full right on the firſt Sunday of March, if not convoked ſooner by the public officers appointed to do ſo by the law."

To be an active citizen, it is neceſſary,

To be a Frenchman, or to have become a Frenchman;

To have attained 25 years complete;

To have reſided in the city or the canton from the time determined by the law;

To pay in any part of the kingdom a direct contribution, at leaſt equal to the value of three days labour, and to produce the acquittance;

Not to be in a menial capacity, namely, that of a ſervant receiving wages;

To be inſcribed in the municipality of the place of his reſidence in the liſt of the national guards;

To have taken the civic oath.

The primary aſſemblies ſhall name electors in the proportion of the number of active citizens reſiding in the city or canton;

There ſhall be named one elector to the aſſembly, or not, according as there ſhall happen to be preſent 100 active citizens.

There ſhall be named two, when there ſhall be preſent from 151 to 250, and ſo on in this proportion.

The electors named in each department ſhall convene, in order to chooſe the number of repreſentatives, whoſe nomination ſhall belong to their department, and a number of ſubſtitutes equal to the third of the repreſentatives.

"The aſſemblies ſhall be held of full right on the laſt Sunday of March, if they have not been before convoked by the public officers appointed to do ſo by law."

All active citizens, whatever be their ſtate, profeſſion, or contribution, may be choſen repreſentatives of the nation.

Excepting, nevertheleſs, the miniſters and other agents of the executive power, &c.

The members of the legiſlative body may be re-elected to a ſubſequent legiſlature, but not till after an interval of one legiſlature.

No active citizen can enter or vote in an aſſembly if he is armed.

The repreſentatives ſhall meet on the firſt Monday of May, in the place of the ſittings of the laſt legiſlature.

The royalty is indiviſible, and delegated hereditarily to the race on the throne from male to male, by order of primogeniture, to the perpetual excluſion of women and their deſcendants.

Nothing is prejudged on the effect of renunciations in the race on the throne.

The perſon of the king is inviolable and ſacred; his only title is king of the French.

If the king put himſelf at the head of an army, and direct the forces of it againſt the nation, or if he do not oppoſe, by a formal act, any ſuch enterpriſe undertaken in his name, he ſhall be held to have abdicated.

If the king having gone out of the kingdom, do not return to it, after an invitation by the legiſlative body, within the ſpace which ſhall be fixed by the proclamation, "and which cannot be leſs than two months," he ſhall be held to have abdicated the royalty.

After abdication, expreſs or legal, the king ſhall be in the claſs of citizens, and may be accuſed and tried like them, for acts poſterior to his abdication.

The nation makes proviſion for the ſplendour of the throne by a civil liſt, of which the legiſlative body ſhall fix the ſum at the commencement of each reign, for the whole duration of that reign.

The king is a minor till the age of 18 complete; and during his minority there ſhall be a regent of the kingdom.

The regency belongs to the relation of the king, next in degree according to the order of ſucceſſion to the throne, who has attained the age of 25; provided he be a Frenchman reſident in the kingdom, and not preſumptive heir to any other crown, and have previouſly taken the civic oath.

The preſumptive heir ſhall bear the name of *Prince Royal.*

"The members of the king's family called to the eventual ſucceſſion of the throne, ſhall add the denomination of *French Prince* to the name which ſhall be given them in the civil act proving their birth; and this name can neither be patronymic nor formed of any of the qualifications aboliſhed by the preſent conſtitution."

"The denomination of *prince* cannot be given to any individual, and ſhall not carry with it any privilege or exception to the common right of all French citizens."

To the king alone belongs the choice and diſmiſſion of miniſters.

"The members of the preſent national aſſembly, and of the ſubſequent legiſlatures, the members of the tribunal of appeal, and thoſe who ſhall be of the high jury, cannot be advanced to the miniſtry, cannot receive any place, gift, penſion, allowance, or commiſſion of the executive power or its agents during the continuance of their functions, or during two years after ceaſing to exerciſe them: the ſame ſhall be obſerved reſpecting thoſe who ſhall only be inſcribed on the liſt of high jurors as long as their inſcription ſhall continue."

No order of the king can be executed if it be not ſigned by him, and counterſigned by the miniſter or comptroller of the department.

In no caſe can the written or verbal order of a king ſhelter a miniſter from reſponſibility.

The conſtitution delegates excluſively to the legiſlative body the powers and functions following;

To propoſe and decree laws—The king can only invite the legiſlative body to take an object into conſideration;

To fix the public expences;

To eſtabliſh the public contributions, to determine the nature of them, the amount of each ſort, the duration, and the mode of collection, &c.

War cannot be reſolved on but by a decree of the national aſſembly, paſſed on the formal and neceſſary propoſition of the king, and ſanctioned by him.

During the whole courſe of war, the legiſlative body may require the king to negociate peace; and the king is bound to yield to this requiſition.

It belongs to the legiſlative body to ratify treaties of peace,

peace, alliance, and commerce; and no treaty shall have effect but by this ratification.

The deliberations of the legislative body shall be public, and the minutes of the sittings shall be printed.

The legislative body may, however, on any occasion, form itself into a general committee.

The plan of a decree shall be read thrice, at three intervals, the shortest of which cannot be less than eight days.

The decrees of the legislative body are presented to the king, who may refuse them his consent.

In case of a refusal of the royal consent, that refusal is only suspensive. When the two following legislatures shall successively present the same decree in the same terms on which it was originally conceived, the king shall be deemed to have given his sanction.

The king is bound to express his consent or refusal to each decree within two months after its presentation.

No decree to which the king has refused his consent can be again presented to him by the same legislature.

The supreme executive power resides exclusively in the hands of the king.

The king is the supreme head of the land and sea forces.

The king names ambassadors, and the other agents of political negociations.

He bestows the command of armies and fleets, and the ranks of marshal of France and admiral:

He names two-thirds of the rear-admirals, one-half of the lieutenant-generals, camp-marshals, captains of ships, and colonels of the national gendarmerie:

He names a third of the colonels and lieutenant-colonels, and a sixth of the lieutenants of ships:

He appoints in the civil administration of the marine, the directors, the comptrollers, the treasurers of the arsenals, the masters of the works, the under masters of civil buildings, half of the masters of administration, and the under masters of construction.

He appoints the commissaries of the tribunals:

He appoints the superintendants in chief of the management of contributions indirect, "and the administration of national domains:"

He superintends the coinage of money, and appoints officers entrusted with this superintendance in the general commission and the mints.

The effigy of the king is struck on all the coinage of the kingdom.

There is in each department a superior administration, and in each district a subordinate administration.

The adminstrators are specially charged with distributing the contributions direct, and with superintending the money arising from the contributions, and the public revenues in their territory.

The king has the right of annulling such acts of the administrators of department as are contrary to the law or the orders transmitted to them.

He may, in case of obstinate disobedience, or of their endangering, by their acts, the safety or peace of the public, suspend them from their functions.

The king alone can interfere in foreign political connections.

Every declaration of war shall be made in these terms: *By the king of the French in the name of the nation.*

The judicial power can in no case be exercised either by the legislative body or the king.

Justice shall be gratuitously rendered by judges chosen from time to time by the people, and instituted by letters patent of the king, who cannot refuse them.

"The public accuser shall be nominated by the people."

"The right of citizens to terminate disputes definitively by arbitration, cannot receive any infringement from the acts of the legislative power."

In criminal matters, no citizen can be judged except on an accusation received by jurors, or decreed by the legislative body in the cases in which it belongs to it to prosecute the accusation.

After the accusation shall be admitted, the fact shall be examined, and declared by the jurors.

The person accused shall have the privilege of challenging 20, "without assigning any reason."

The jurors who declare the fact shall not be fewer than 12.

The application of the law shall be made by the judges.

The process shall be public; "and the person accused cannot be denied the aid of counsel."

No man acquitted by a legal jury can be apprehended or accused on account of the same fact.

For the whole kingdom there shall be one tribunal of appeal, established near the legislative body.

A high national court, composed of members of the tribunal of appeal and high jurors, shall take cognizance of the crimes of ministers, and the principal agents of the executive power; and of crimes which attack the general safety of the state, when the legislative body shall pass a decree of accusation.

It shall not assemble but on the proclamation of the legislative body; "and at the distance of 30,000 toises at least from the place of meeting of the legislative body."

The national guards do not form a military body, or an institution in the state; they are the citizens themselves called to assist the public force.

Officers are chosen for a time, and cannot again be chosen till after a certain interval of service as privates.

None shall command the national guard of more than one district.

All the parts of the public force employed for the safety of the state from foreign enemies are under the command of the king.

Public contributions shall be debated and fixed every year by the legislative body, and cannot continue in force longer than the last day of the following session, if they are not expresly renewed.

"Detailed accounts of the expence of the ministerial departments, signed and certified by the ministers or comptrollers-general, shall be printed and published at the commencement of the sessions of each legislature.

"The same shall be done with the statements of the receipt of the different taxes, and all the public revenues."

The French nation renounces the undertaking of any war with a view of making conquests, and will never employ its forces against the liberty of any people.

The constituting national assembly declares, "That the

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the nation has the imprescriptible right of changing its constitution; and nevertheless considering that it is more conformable to the national interest to employ only by means provided in the constitution itself, the right of reforming those articles of it, of which experience shall have shown the inconveniencies, decrees, that the proceeding by an assembly of revision shall be regulated in the form following:

"When three successive legislatures shall have expressed an uniform wish for the change of any constitutional article, the revision demanded shall take place.

"The next legislature, and the following, cannot propose the reform of any constitutional article.

"The fourth legislature, augmented with 249 members, chosen in each department, by doubling the ordinary number which it furnishes in proportion to its population, shall form the assembly of revision."

The French colonies and possessions in Asia, Africa, and America, "though they form part of the French empire," are not included in the present constitution.

With respect to the laws made by the national assembly which are not included in the act of constitution, and those anterior laws which it has not altered, they shall be observed, so long as they shall not be revoked or modified by the legislative power.

98 Act accepted by the king.

On the 13th of September the King announced, by a letter to the President of the Assembly, his acceptance of the constitution. This event was ordered to be notified to all the foreign courts, and the Assembly decreed a general amnesty with respect to the events of the revolution. On the following day the King repaired in person to the National Assembly; and being conducted to a chair of state prepared for him at the side of the President, he signed the constitutional act, and took an oath of fidelity to it. He then withdrew, and was attended back to the Thuilleries by the whole Assembly, with the President at their head. On the 30th of September, this National Assembly, which has since been known by the name of the *Constituent Assembly*, dissolved itself, and gave place to the succeeding *Legislative National Assembly*, which had been elected according to the rules prescribed by the new constitution.

99 The assembly dissolved.

100 Character and labours of the constituent assembly.

On the character and the labours of the *Constituent Assembly*, we shall only remark, that it contained many men of talents, and, in all probability, a considerable number of men of integrity. Towards the close of its session, it assumed a very striking character of moderation, and appears to have been completely monarchical, although its jealousy of the ancient aristocracy prevented it from sufficiently guarding the throne against popular violence; for a very striking defect in the new constitution soon appeared. The King possessed a *veto*, or negative, upon the resolutions of the legislative body: but this negative he was bound to exercise in *person*, without responsibility, and without the intervention of his ministers. He had no senate, or upper chamber, to stand between him and popular violence; and there was something apparently absurd in settling the vote of an individual, in opposition to the collective wisdom and will of a whole nation. In consequence of this, he was reduced to the hard alternative of yielding to every vote of the National Assembly, or of exposing himself personally to public odium.

The new Assembly was opened by the King on the 7th of October, with much apparent union on all sides. His speech, recommending unanimity and confidence between the legislative and executive powers, was received with unbounded applause. The character of the men who composed the new National Assembly was unauspicious to the Court. At the commencement of the revolution, the great body of the people at a distance from the capital were little interested in those projects of freedom which occupied the more enlightened or more turbulent inhabitants of Paris. They had gradually, however, been roused from their lethargy. The variety of powers conferred by the new constitution upon the people at large, and the multiplicity of offices of which it gave them the patronage, had kindled in the minds of men a love of dominion, and a wish to interfere in public affairs. This attached them to the new order of things. The love of power, which is the least disguised passion in the human heart, and equally strong in the breast of the meanest and of the highest of mankind, was thus, under the name of liberty, become a leading passion throughout this wide empire. They who flattered it most, and were most loud in praise of the rights of the people, became speedily the favourites of the public. The consequence of this was, that the new National Assembly was chiefly composed of country gentlemen, of principles highly democratic, or of men of letters who had published popular books, or conducted periodical publications. The members of the Constituent Assembly had been excluded by their own decree from holding seats in the new legislature.—The members of the latter, therefore, had little regard for a constitution which they themselves had not framed, and which was not protected by the venerable sanction of antiquity.

101 The new assembly opened by the king, and the character of the members.

When this Assembly first met, it showed a very trifling attention to formalities, and a peevish jealousy of the ministers of the crown. In the mean time, the treaty of Pilnitz, already mentioned, began to be rumoured abroad, and France was thrown into a state of anxious jealousy for the safety of its newly-acquired liberties. Although the Prussians and Germans (the Elector of Mentz alone excepted) all continued to temporize, the northern powers, Sweden and Russia, entered into strict engagements to restore the old despotism of France. On the 9th of November, a decree was passed, that the emigrants who, after the first of January next, should be found assembled, as at present, in a hostile manner, beyond the frontiers, should be considered as guilty of a conspiracy, and suffer death; that the French Princes, and public functionaries, who should not return before that period, should be punishable in the same manner, and their property forfeited during their own lives. On the 18th, a series of severe decrees was also passed against such of the ejected clergy as still refused to take the civic oath. To both these decrees the King opposed his *veto*, or negative.—The moderate party, who were attached to the constitution, rejoiced at this as a proof of the freedom of their sovereign. But, on the other side, it excited a most violent clamour, and became the means of exciting new suspicion of the wishes of the Court. At this time answers were received from the different foreign Courts to the notification sent them of the King's acceptance of the new constitution. These were generally conceived in a tone of caution, and avoided giving [illegible] offence.

102 Their jealousy of the ministers of the crown, and consequent conduct.

103 Pacific answers are received from foreign powers.

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open offence. The Emperor even prohibited all assemblages of emigrants within his states; and the King intimated to the Assembly that he had declared to the Elector of Treves, that unless the emigrants should cease before the 15th of January to make hostile preparations within his territories, he would be considered as the enemy of France. All this, however, did not preserve the court from suspicion; for although the different foreign courts had openly declared pacific intentions, yet the French emigrants boldly asserted, that all Europe was actually arming in their favour. Accordingly they ceased not to solicit their equals in rank, who still remained within the country, to leave it to join with them in what they called the *royal cause*.—The unhappy Louis, placed between a republican party that was gradually gathering strength, and an aristocratical party that was rousing Europe to arms against a nation of which he was the constitutional chief, and a combination of Princes justly suspected of wishing to seize upon a part of his dominions, stood in a situation which would have perplexed the most skilful statesman; and it is no proof of incapacity that he fell a sacrifice to circumstances which might have overwhelmed any known measure of human ingenuity. Addresses were crowding into the Assembly, disapproving the conduct of the court. M. Montmorin resigned; M. Delessart succeeded him; and M. Cahier de Gerville became minister of the interior. M. du Portail resigned also, and M. Narbonne succeeded him as minister of war. In the month of November, M. Bailly's mayoralty terminated; and the once popular La Fayette appeared as a candidate to succeed him. But he was successfully opposed by M. Petion, a violent Jacobin, and a declared republican, who was elected mayor of Paris by a great majority.

104 But the court is still suspected.

105 The ministry changed.

106 The Feuillans established to oppose the Jacobin club.

At this period the moderate men, who were friends of the constitution, attempted to counteract the influence of the Jacobin club by the establishment of a similar one. It derived its name from the vacant convent of the *Feuillans*, in which it assembled. The most active members of the Constituent Assembly belonged to it, such as M. M. D'Andre, Barnave, the Lameths, Du Port, Rabaud, Sieyes, Chapelier, Thouret, Labord, Taleyrand, Montesquieu, Beaumetz, &c. The Jacobins contrived to excite a riot at the place of their meeting, which was in the vicinity of the hall of the National Assembly. This afforded a pretext for applying to the Assembly for the removal of the new club. The Assembly showed their disposition, by complying with this request.

107 State of France in the end of 1791 and beginning of 1792.

At the end of this year, the kingdom of France was by no means prosperous. The public revenue had fallen far short of the expenditure. The emigrant nobility had carried out of the kingdom the greater part of the current coin, and a variety of manufacturers, who depended upon their ostentatious luxury, were reduced to much distress. The dispositions of foreign courts appeared very doubtful. The new year, however, opened with delusive prospects of tranquillity.—The German Princes appeared satisfied with the mode of compensation which the French had offered for the loss of their possessions in Alsace and Lorraine. The Prince of Lowestein accepted of an indemnification.—The Princes of Hohenlohé and Salm-Salm declared themselves ready to treat upon the same terms. Prince Maximilian, and the Dukes of Wirtemberg and Deux-Ponts, freely negociated. It is unnecessary to state in detail the subterfuges employed, in the mean time, by the crafty Leopold, for amusing the French with the appearances of peace. M. Delessart, minister for foreign affairs, fell a sacrifice to them, and probably to the undecided character of Louis. He was accused by M. Brissot of not having given timely notice to the National Assembly of the dispositions of foreign powers, and of not pressing proper measures for securing the honour and safety of the nation. A decree of accusation passed against him in his absence. He was apprehended, tried by the high national court at Orleans, and executed in consequence of its sentence.

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108 The death of the emperor and murder of the king of Sweden.

The sudden death of Leopold on the first of March gave rise to a transient hope that peace might still be preserved. A suspicion of poison fell upon the French, but it was removed by the detail of his disease that was speedily published. On the 16th of the same month, the King of Sweden was wounded by a nobleman of the name of Ankerstrom, and died on the 29th. This enterprising Prince had overturned the constitution of his own country, and he had formed the project of conducting in person his troops to the frontiers of France, and of commanding or accompanying the combined armies of Europe in their attempt to avenge the cause of insulted royalty. It was in a great measure to counteract this scheme that he was assassinated.

109 The emperor's successor openly avows warlike intentions.

The sudden fall, however, of these two enemies rather accelerated than retarded the meditated hostilities. The young King of Hungary, who succeeded to the empire, made no secret either of his own intentions or of the existence of a *concert of Princes* against France. M. Dumourier was now at the head of the war-office, M. Rolland was minister of the interior, and M. Claviere minister of finance. The Jacobins were all-powerful. The Court gave way to the torrent. The property of the emigrants was confiscated, reserving the rights of creditors. The Imperial minister, Prince Kaunitz, demanded three things of France; *1st*, The restitution of their feudal rights to the German Princes; *2dly*, To restore Avignon to the Pope, the inhabitants of which had some time before thrown off their allegiance, and prevailed with the Constituent Assembly to receive their country as a part of France; and *lastly*, Prince Kaunitz demanded, that "the neighbouring powers should have no reason for apprehension from the present weakness of the internal government of France." On receiving these demands, the king proposed a declaration of war, which was decreed by the National Assembly on the 20th of April, against *the King of Hungary and Bohemia*.

110 And the Austrian Netherlands are unsuccessfully attacked by the French.

The French immediately began the war, by attacking in three different columns the Austrian Netherlands. M. Theobald Dillon advanced from Lisle to Tournay, where he found a strong body of Austrians ready to receive him. The national troops, unaccustomed to sustain the fire of regular soldiers, were instantly thrown into confusion, and fled even to the gates of Lisle. The cry of *treason* resounded on all sides; and their commander, an experienced and faithful officer, was murdered by his own soldiers and the mob. A second division of 10,000 men, under Lieutenant-General Biron, took possession of Quiverain on the 29th, and marched towards Mons. General Biron was here attacked by the

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the Auſtrians, whom he repulſed. Hearing, however, of the defeat of Dillon, he retreated. A third party advanced to Furnes, but afterwards withdrew. La Fayette at the ſame time advanced towards Bouvines, half way to Namur, from which he afterwards retreated. The whole of theſe expeditions were ill contrived, in as much as they divided the French undiſciplined troops, and expoſed them in ſmall bodies to the attack of veteran forces. The Auſtrians were ſome time before they attempted to retaliate. At length, however, on the 11th of June, they attacked M. Gouvion, who commanded the advanced guard of La Fayette's army near Maubeuge. M. Gouvion was killed by a rolling bullet; but La Fayette himſelf having come up, the Auſtrians abandoned the field. In the mean time, matters were haſtening in Paris towards a violent criſis. Two parties, both of which were hoſtile to the preſent conſtitution, had gradually been formed in the ſtate. The one wiſhed to give more effectual ſupport to the royal authority, by eſtabliſhing a *ſenate* or *two chambers*, to prevent the king's vote from being the ſole check upon popular enthuſiaſm. The other party wiſhed to ſet aſide royalty altogether, and to hazard the bold experiment of converting France into a republic. Theſe laſt were ſupported by the Jacobin club, which had now contrived to concentrate in itſelf an immenſe maſs of influence. Innumerable popular ſocieties were eſtabliſhed in every town and village throughout the provinces. With theſe a regular correſpondence was kept up by writing and by emiſſaries. Thus ſchemes and notions were inſtantaneouſly propagated through a great empire, and all the violent ſpirits which it contained were enabled to act in concert: But the more immediate engine of the republican party conſiſted of the immenſe population of the metropolis, whom they now endeavoured to keep in conſtant alarm. For this purpoſe they alleged, that an *Auſtrian Committee*, that is to ſay, a conſpiracy in favour of the enemies of the country, exiſted among the friends of the court. M. M. Genſonné and Briſſot even offered in the aſſembly to prove the exiſtence of this pretended Auſtrian committee. A report was next circulated, that the king intended to abſcond from the capital on the 23d of May. His majeſty publicly contradicted theſe accuſations as calumnies, but they made no ſmall impreſſion upon the minds of the public. New decrees were now made againſt the refractory clergy, but theſe his majeſty refuſed to ſanction. A propoſal was alſo made and decreed in the aſſembly to form a camp of 20,000 men under the walls of Paris, and that for this levy every canton in the kingdom ſhould contribute one horſeman and four infantry. The national guard of Paris diſliked the propoſal, and the king gave to it his negative. Indeed at this time the king ſeems to have come to a reſolution of ſtanding out againſt the Jacobin party, to which he had for ſome time yielded. The miniſtry were therefore diſmiſſed, excepting M. Dumourier, and others were appointed in their ſtead. By this event Dumourier loſt the confidence of the Jacobin club. He ſaw his error, reſigned his office, and joined the army. In the mean time a decree had been paſſed, authoriſing the manufactory of pikes for the purpoſe of arming cheaply the lower claſs of citizens. All means were uſed to render the king odious by inflammatory writings and harangues; and in both of theſe the noted incendiary Marat took the lead.

111 Two parties in Paris at this period, and their conſequences.

112 An armed mob marches through the aſſembly, ſurrounds the Thuilleries and inſults the royal family.

On the 20th of June M. Roederer, the Procureur General Syndic informed the national aſſembly, that, contrary to law, formidable bodies of armed men were preparing to preſent petitions to the king, and to the national aſſembly. A part of them ſpeedily appeared with St Huruge and Santerre a brewer at their head. They marched through the hall in a proceſſion that laſted two hours, at four o'clock in the afternoon, to the number of about 40,000. They ſurrounded the Thuilleries. The gates were thrown open; and on an attempt to break the door of the apartment, where the king then was, he ordered them to be admitted. His ſiſter the princeſs Elizabeth never departed from his ſide during four or five hours that he was ſurrounded by the multitude, and compelled to liſten to every indignity. All this while Petion, the mayor of Paris, was unaccountably abſent. He at length, however, arrived, and alſo a deputation from the aſſembly. The queen, with her children and the princeſs de Lamballe, were in the mean time in the council-chamber, where, though protected from violence, they were yet expoſed to much inſult. At laſt, in conſequence of the approach of evening, and of the entreaties of Petion, the multitude gradually diſperſed.

113 The more reſpectable inhabitants are aſhamed of ſuch conduct.

The indignities ſuffered on this day by the royal family were in ſome reſpects not unfavourable to their cauſe. A great number of the moſt reſpectable inhabitants of the capital were aſhamed of ſuch proceedings. They complained of them ſeverely in a petition to the aſſembly, and addreſſes to the ſame purpoſe were received from ſeveral departments. The directory of the department of Paris, at the head of which were M. Rochefaucault and M. Tulleyrand, publiſhed a declaration diſapproving of the conduct of the mayor, and of M. Manuel the procureur of the commune, whom they afterwards ſuſpended from their offices, although they were ſpeedily reſtored by a decree of the aſſembly. At the ſame time, La Fayette leaving his army ſuddenly, appeared on the 26th at the bar of the national aſſembly. He declared that he came to expreſs the indignation which the whole army felt on account of the events of the 20th: he called upon the aſſembly to puniſh the promoters of theſe events, and to diſſolve the factious clubs. The ſudden appearance of La Fayette threw the Jacobins into conſternation, and from that period they never ceaſed to calumniate him.

114 The king of Pruſſia marches againſt France.

On the 1ſt of July, on the motion of M. Jean de Brie, the aſſembly ordered a proclamation to be made, that *the country was in danger*. On the 6th, the king gave intimation that the king of Pruſſia was marching with 52,000 men to co-operate againſt France. The French arms were at this time ſomewhat ſucceſsful in the Auſtrian Netherlands; but the cabinet ſpeedily thought it neceſſary to order the armies to retreat: a meaſure which was afterwards publicly cenſured by Marſhall Luckner.

115 Moderate ſpeech of the biſhop of Lyons.

On the 7th, a ſingular ſcene occurred in the national aſſembly. At the inſtant that M. Briſſot was about to commence an oration, M. Lammourette biſhop of Lyons requeſted to be heard for a few minutes. He expatiated on the neceſſity of union among the members of the aſſembly, and of ſacrificing their paſſions and prejudices

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judices on the altar of their country. He concluded an animated address with these words, "Let all who hold in equal detestation a republic and two chambers, and who wish to maintain the constitution as it is, rise!" The words were scarcely pronounced when the whole assembly started from their seats. Men of all parties solemnly embraced each other, and protested their adherence to the constitution. A deputation announced this happy event to the king; who immediately came and congratulated them in a short speech, which was received with infinite applause. The only good effect, however, produced by this temporary agreement was, that the festival of the 14th of July, which was celebrated with the usual magnificence, passed over in tranquillity.

116 Manifesto of the duke of Brunswick

On the 25th of July, the duke of Brunswick issued at Coblentz his celebrated manifesto. It declared the purpose of the intended invasion of France to be the restoration of the French king to full authority. It declared the national guard of France responsible for the preservation of tranquillity; and threatened with the punishment of death, as rebels to their king, those who should appear in arms against the allied powers. All men holding offices, civil or military, were threatened in the same manner, as well as the inhabitants of all cities. The city of Paris in particular, and the national assembly, were declared responsible for every insult which might be offered to the royal family. It was declared, that if they were not immediately placed in safety, the allies were resolved to inflict "on those who should deserve it the most exemplary and ever memorable avenging punishments, by giving up the city of Paris to military execution, and exposing it to total destruction; and the rebels who should be guilty of illegal resistance should suffer the punishments which they should have deserved." This sanguinary and imprudent manifesto operated as a warrant for the destruction of the unfortunate Louis XVI. It left no middle party in the nation. All who wished to preserve freedom in any form, and all who loved the independence of their country, were instantly united. At the same time, the reproaches cast on the king by the Jacobins now gained universal credit. The kings of Prussia and of Hungary told the French nation, that their monarch was secretly hostile to the constitution; and the restoration of him and his family to despotic power was made the sole pretence for a bloody and dangerous war.

117 Injurious to Louis,

118 But advantageous to the republican party, who resolve to depose him.

The republican party saw the advantage which they had now gained, and resolved upon the deposition of the king. The chief engine which they meant to employ in this service consisted of about 1500 men, who had come to Paris at the period of the confederation on the 14th of July, and therefore called *fédérés*, and who were also sometimes denominated *Marseillois*, from the place from which the greater number of them came. Next to these, dependence was placed in the populace of the suburbs of the capital. The designs of the republicans were not unknown to the court, and both parties were forming plans of operation. It is said that the royal party intended that the king and his family should suddenly leave the capital, and proceed to as great a distance as the constitution permitted. The republicans are said to have intended to seize the person of the king, and to confine him in the castle of Vincennes till a national convention should decide upon his fate. Both allegations are probably true. Every motive which can influence the mind of man must have induced Louis to wish to be at a distance from the factious and sanguinary capital. And the subsequent conduct of the republicans authorise us to believe them capable of the worst crime that was laid to their charge.

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11 La Fay accuse acquit

Various charges had been brought forward in the assembly against La Fayette, and the 8th of August was appointed for their discussion. In the mean time, on the 3d of August, Petion the mayor, at the head of a deputation from the sections of Paris, appeared at the bar, and in a solemn speech demanded the deposition of the king. The discussion of the accusation against La Fayette was considered as a trial of strength between the parties: he was acquitted, however, by a majority of nearly 200; and the republican party, despairing of carrying their point by a vote of the national assembly, resolved to have recourse to insurrection and force.

12c Horrid of the publica

On the evening of the 9th of August, about 1500 gentlemen, officers of the army, and others, repaired to the palace, resolved to protect the royal family or to die in their defence: added to these were 700 Swiss guards, with a body of cavalry amounting to about 1000. Mandat, the commander of the national guards, a man who was firmly attached to the constitution, had procured 2400 of that body and 12 pieces of cannon. With such a force, it has been generally thought that, by vigorous and steady councils, the palace, which is a kind of castle, might have been successfully defended; and what is now called a revolution might have born the name of a rebellion. Meanwhile the assembly declared its sittings permanent. Petion was at the palace late on the evening of the 9th. Some apprehensions were entertained, or pretended to be entertained, for his safety (for the whole of this business was, on the part of the republicans, the most infernal plot), and a deputation from the assembly brought him away. At midnight the tocsin or alarm bell was sounded, and the drums beat to arms through the city. At this instant a number of the most active leaders of the republican party assembled, and elected a new common council or *commune*. The persons thus irregularly chosen instantly took possession of the common hall, and drove out the lawful members; who, with that weakness with which men are apt to shrink from stations of responsibility in perilous times, readily gave place to the usurpers. The new commune sent repeated messages to M. Mandat, requiring his attendance upon important business. He was occupied in arranging the troops in the best order around the palace; but suspecting nothing, he went to the common hall, and was there astonished to find a different assembly from what he expected. He was abruptly accused of a plot to massacre the people, and ordered to prison; but as he descended the stairs, he was shot with a pistol, and Santerre was appointed in his stead to command the national guard.

On this eventful night no person in the palace went to bed. About six o'clock in the morning of the 10th the king descended into the gardens to review the troops. He was received with shouts of *Vive le roi* excepting from the artillery, who shouted *Vive la nation*. The king returned to the palace, and the multitude continued to collect. The national guard seemed undetermined about what they were to do, as they assembled in divisions near the palace; and had a steady resistance

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ſiſtance been made from within, it is probable they would have joined the royal party. But towards eight o'clock M. Roederer procured admittance to the palace, and told the king that armed multitudes were aſſembling in hoſtile array around the Thuilleries; that the national guard was not to be depended upon; and that, in caſe of reſiſtance, the whole royal family would moſt certainly be maſſacred. He therefore adviſed the king to ſeek protection in the hall of the national aſſembly. With this advice the king, with his uſual facility of temper, was ready to comply; but the queen oppoſed with vehemence the humiliating propoſal. Becoming gradually, however, alarmed for the ſafety of her children, ſhe gave her conſent; and the king and queen, the princeſs Elizabeth, with the prince and princeſs royal, went on foot to the hall of the aſſembly. "I am come hither (ſaid his majeſty) to prevent a great crime. Among you, gentlemen, I believe myſelf in ſafety." By an article of the conſtitution the aſſembly could not deliberate in preſence of the king. The royal family were, therefore, placed in a narrow box ſeparated from the hall by a railing, where they remained for 14 hours without any place to which they could retire for refreſhment, excepting a very ſmall cloſet adjoining. Here they ſat liſtening to debates, in which the royal character and office were treated with every mark of inſult.

When the king left the palace of the Thuilleries, he unfortunately forgot to order it to be immediately ſurrendered. He recollected this as ſoon as he reached the aſſembly, and ſent orders for this purpoſe; but it was now too late. The inſurgents amounted to about 20,000 effective men. They were drawn up in tolerable order by Weſterman a Pruſſian, and had about 30 pieces of cannon along with them. The gentlemen within the palace, who had aſſembled to protect the king's perſon, were now diſpirited, and knew not what part to act. The commander of the Swiſs, M. Affry, was abſent, and the captains knew not what to do; and the national guard had no leader in conſequence of the death of Mandat. About nine o'clock the outer gates were forced open; and the inſurgents formed their line in front of the palace. A bloody combat commenced chiefly between the Marſeillois and the Swiſs. After a brave reſiſtance of about an hour, the Swiſs were overpowered by numbers, and gave way. All of them that could be found in the palace were maſſacred; ſome even while imploring quarter on their knees. Others eſcaped into the city, and were protected by individuals. Of this brave regiment, however, only 200 ſurvived; but every human being, even the loweſt ſervants found in the palace, were put to death. The Swiſs taken priſoners in various quarters were conducted to the door of the aſſembly, and taken by a decree under the protection of the ſtate. But the ſanguinary multitude inſiſted upon putting them to inſtant death; and the aſſembly would, in all probability, have been unable to protect them, had not the Marſeillois interfered in their favour.

The ſuſpenſion of the royal authority was now decreed, and the nation was invited to elect a *Convention* to determine the nature of its future government. On this uncommon occaſion all Frenchmen of 21 years of age were declared capable of electing, and of being elected, deputies to the new national Convention. Commiſſioners were, in the mean time, ſent on the ſame evening to give to the armies a falſe and favourable account of theſe tranſactions. The royal family were ſent to the old palace of the Temple in the midſt of the city, to remain there under a ſtrict guard; and all perſons of rank who had been attached to them were ſeized and committed to the different priſons.

121 Bloody temper of the people of Paris, &c.

To give an idea of the temper of the people of Paris at this time, it is proper to remark, that at the ſame inſtant when the multitude with bloody fury were maſſacring the menial ſervants in the palace, and could ſcarcely be reſtrained from offering violence to the Swiſs who were made priſoners, they would ſuffer no act of pillage to paſs unpuniſhed. Several attempts of this kind were accordingly followed by the inſtant death of the criminals. The plate, the jewels, and money found in the Thuilleries were brought to the national aſſembly, and thrown down in the hall. One man, whoſe dreſs and appearance beſpoke extreme poverty, caſt upon the table an hat full of gold.—But the minds of theſe men were elevated by enthuſiaſm; and they conceived themſelves as at this moment the champions of freedom, and objects of terror to the kings of the earth.

122 Critical ſituation of the whole kingdom.

In the mean time, the ſituation of France was extremely critical, and it appeared very doubtful if the new Convention would ever be ſuffered to aſſemble. La Fayette had accidentally got ſpeedy notice of the events of the 10th of Auguſt. He adviſed the magiſtrates of the town of Sedan to impriſon the commiſſioners from the national aſſembly when they ſhould arrive there; which was accordingly done. He, at the ſame time, publiſhed an addreſs to his army, calling upon them to ſupport the king and the conſtitution; but finding that they were not to be depended upon, on the 19th Auguſt he left his camp in the night, accompanied only by his ſtaff and a few ſervants. They took the rout of Rochefort in Liege, which was a neutral country; but were met by a party of the enemy, who took them priſoners, and they were detained in Pruſſian and Auſtrian dungeons till autumn 1794, when it is ſaid that La Fayette himſelf made his eſcape. The ſevere treatment of this man was probably a conſiderable error in policy on the part of the allies. His fidelity to his king is very generally admitted; though ſome have entertained ſtrong ſuſpicions of his having acted a very baſe part to that unfortunate monarch; and in the Britiſh houſe of commons he has been called an abandoned ruffian. This expreſſion is certainly too ſtrong. His errors ſeem to have been thoſe of the head rather than of the heart; and at all events, he ſhould have been protected by the allies if for no other reaſon than to encourage ſubſequent deſertions among the officers of the republican army.

123 La Fayette withdraws from the army.—His fate and character.

To return from this digreſſion. The commiſſioners were ſoon ſet at liberty at Sedan, and received with applauſe by the army of La Fayette. General Arthur Dillon at firſt entered into the ſentiments of La Fayette; but the politic Dumourier diverted him from his purpoſe, and by this means regained his credit with the Jacobins, and was appointed commander in chief. The other generals, Biron, Monteſquieu, Kellerman, and Cuſtine, made no oppoſition to the will of the national aſſembly.

Meanwhile, the combined armies of Auſtria and Pruſſia had entered France. The duke of Brunſwick's

French Revolution, 1792.

127 The combined armies enter France in great force.

army was above 50,000 ſtrong. General Clairfait had joined him with 15,000 Auſtrians, and a conſiderable body of Heſſians, along with 20,000 French emigrants; amounting in all to 90,000 men. To oppoſe theſe, Dumourier had only 17,000 men collected near the point from which the enemy were approaching in Luxembourg. The French emigrants had given the duke of Brunſwick ſuch an account of the diſtracted ſtate of their own country, and of the pretended diſaffection of all orders of men towards the ruling faction in Paris, that no reſiſtance of any importance was expected. When the combined troops, conſiſting either of ſteady Auſtrian or Hungarian battalions, or of thoſe well diſciplined Pruſſians which the great Frederick had inured to the beſt military diſcipline, were reviewed in Germany before ſetting out on their march, it is ſaid that the ſpectators, among whom the French cauſe was not unpopular, beheld them with anxiety and regret, and pitied the unhappy country againſt which this irreſiſtible force was directed. The ſoldiers and their officers regarded themſelves as departing for a hunting match, or an excurſion of pleaſure; and many of the uſual accommodations of an army were ill attended to, ſuch as hoſpitals, &c. The beginning of their progreſs into France juſtified theſe expectations. Longwy ſurrendered after a ſiege of 15 hours, although well fortified, poſſeſſed of a garriſon of 3500 men, and defended by 71 pieces of cannon. The news of this event irritated the aſſembly ſo much, that they decreed, that, when retaken, the houſes of the citizens ſhould be razed to the ground; and, diſtruſtful of the officers of the army, they decreed that the municipal officers of a town ſhould hereafter have power to controul the deliberations of the council of war. Verdun was next ſummoned; and here the municipality compelled the governor M. Beaurepiare to ſurrender. That officer, diſappointed and enraged, ſhot himſelf dead with a piſtol in preſence of the council, and on the 2d of September the Pruſſian troops entered the town.

128 Alarm at Paris on account of their ſucceſs.

The news of this ſecond capture, and of the approach of the Pruſſians, ſpread an inſtant alarm through Paris. It was propoſed to raiſe a volunteer army, which ſhould ſet out immediately to meet the enemy. The common council, which was now led by Robeſpierre, Danton, Marat, and others of the moſt ſanguinary character, ordered the alarm-guns to be fired, and the populace to be ſummoned to meet in the Champ de Mars to enroll themſelves to march againſt the enemy. The people aſſembled, and either in conſequence of a premeditated plan, or, which is not very probable, of an inſtantaneous movement, a number of voices exclaimed, that "the domeſtic foes of the nation ought to be deſtroyed before its foreign enemies were attacked."

129 Horrid maſſacres.

Parties of armed men proceeded without delay to the priſons where the non-juring clergy, the Swiſs officers, and thoſe confined ſince the 10th of Auguſt on account of practices againſt the ſtate, were detained in cuſtody. They took out the priſoners one by one, gave them a kind of mock trial before a jury of themſelves, acquitted ſome few, and murdered the reſt. Among theſe laſt was the princeſs de Lamballe. She was taken from her bed before this bloody tribunal, and maſſacred; her head was carried by the populace to the Temple, to be ſeen by the queen, whoſe friend ſhe was. Theſe maſſacres laſted for two days, and upwards of 1000 perſons were put to death. There is ſcarce any thing in hiſtory that can be repreſented as parallel to them; they were committed, it is ſaid, by leſs than 300 men, in the midſt of an immenſe city, which heard of them with horror, and in the vicinity of the national aſſembly, which, by going in a body, could have put an end to them. But ſuch was the confuſion and diſmay of theſe two diſgraceful days, that no man dared to ſtir from his own houſe; and every one believed that the whole city, excepting his own ſtreet, was engaged in maſſacre and bloodſhed. The national guards were all ready at their reſpective poſts, but no man directed them to act: and there is too much reaſon to ſuſpect that Santerre and the chiefs of the commune connived, at leaſt, at the tranſaction.

State of the French army under Dumourier.

In the mean time, general Dumourier was taking the beſt meaſures to protract the march of the enemy till the army of Kellerman, conſiſting of 20,000 men, could join him from Lorraine, and that of Bournonville from Flanders, amounting to 13,000; together with whatever new levies Luckner might be able to ſend him from Chalons. The foreſt of Argonne extends from north to ſouth upwards of 40 miles; it lay directly in the route of the duke of Brunſwick, who muſt either force his way acroſs it, or make a circuit of 40 miles by the paſs of Grandpré on the north, or by Barleduc on the ſouth. The paſs that lay directly in his route was that of Bieſme. After ſurveying Dillon's poſition here, he left a party of 20,000 men to watch it; and with the main body of his army took the circuitous rout by Grandpré on the north. Here Dumourier waited to receive him, and was attacked on the 12th and 13th without ſucceſs: but on the 14th, the attack of the Pruſſians was irreſiſtible, and Dumourier retreating, gave up the paſs. On his march he was ſo violently preſſed by the advanced cavalry of the Pruſſians, that his army, at one time, was ſeized with a panic, and fled before 1500 men; who, if they had puſhed their advantage, might have diſperſed it. On the 15th, however, Dumourier encamped at St Menehould, and began to fortify it. Bournonville's army joined Dumourier on the 17th. The duke of Brunſwick formed a plan of attacking Kellerman before his junction could be completed. That general arrived on the 19th within a mile of Dumourier's camp; the projected attack took place; the Pruſſians manœuvred with their uſual coolneſs and addreſs; they attempted to ſurround Kellerman's army, but this could not be accompliſhed. The French troops preſerved excellent order, while the national vivacity was conſtantly ſhowing itſelf in their ſhouts and patriotic ſongs: 400 French were killed, and 500 wounded; the loſs of the Pruſſians was much greater: and, in the face of the enemy, Kellerman joined Dumourier at the end of the engagement without oppoſition. At the time that the attack was made on the army of Kellerman, an attempt was made to force Dillon's camp at Bieſme by the 20,000 men that had been left in its vicinity, but without ſucceſs; and this large detachment was thus prevented from croſſing the foreſt of Argonne and joining the duke of Brunſwick. It is to be obſerved, that in theſe engagements the French owed their ſuperiority chiefly to the excellence of their artillery; a circumſtance which ſerved to convince their enemies that they

The Pruſſians ſlight him retreat ut do n follow their ſ. vant.

had to contend with regular military bodies, and not with undisciplined multitudes, as they expected.

The duke of Brunswick encamped his army at La Lun, near the camp of Dumourier. And here the Prussians began to be in extreme distress both from sickness and famine. No temptation could induce the inhabitants of the country to carry provisions to the hostile camp, while at the same time the French army was abundantly supplied.

Bournonville, with a body of 4000 men, intercepted several droves of cattle and other convoys of provisions destined for the Prussians. The rain fell in torrents, and the roads were uncommonly deep. Exposed to the cold, the moisture, and want of provisions, the Prussians rashly ate great quantities of the grapes of Champagne. The consequence of this was, that an epidemical distemper commenced and spread through the army to such an extent, that 10,000 men at one time were unfit for duty. The duke of Brunswick, however, still commanded a force much more numerous than that of Dumourier; and he has been much censured for not attacking his camp, and forcing him to engage. It has been said, that the veteran and numerous force which he commanded would have marched to certain victory against the raw troops that opposed them; that, having defeated Dumourier's army, there was nothing to oppose their march to Paris. But the duke of Brunswick had entered France upon the supposition, that in its present distracted state no regular army could be brought into the field against him, and that the people at large were hostile to the ruling faction. The contrary of all this had turned out to be true. He found himself in the midst of an hostile people, and opposed by skilful military chiefs. A defeat in such a situation would have brought certain ruin to his army; and even the loss sustained in the acquisition of a victory might have proved equally fatal. The remains of the French army would not fail to hang upon his rear; and from the disposition of the people it appeared impossible to ascertain to what amount that army might be suddenly increased. After proposing a truce, therefore, which lasted eight days, he commenced his retreat towards Grandpré, and no advantage was gained over him in the course of it. Verdun was retaken by the French on the 12th of October, and Longwy on the 18th; the siege of Thionville was at the same time raised. That small, but strong-fortress, under the command of general Felix Wimpfen, had held in check an army of 15,000 men.

133 While the Prussians were advancing from the north-east, the Austrians under the duke of Saxe Teschen laid siege to Lisle. The council-general of the commune answered the summons of the besiegers thus, "We have just renewed our oath to be faithful to the nation, and to maintain liberty and equality, or to die at our post. We will not perjure ourselves." Such was the cant of these men who had already perjured themselves by contributing to overturn the constitution which they had repeatedly sworn to defend. The Austrian batteries began to play upon the town on the 29th, and were chiefly directed against that quarter which was inhabited by the lower class of citizens, for the purpose of making them mutinous and seditious. This procedure was ill judged. The lower classes of mankind are always much accustomed to hardships, and they go farthest in support of any enthusiastic principle they have been persuaded to adopt. Accordingly, though a great part of the city was reduced to a heap of ruins, the citizens of Lisle became daily more obstinate. They received each other into the houses that were still standing, and every vault and cellar was occupied. Although upwards of 30,000 red-hot balls and 6000 bombs were thrown into the city, besides the efforts made by an immense battering train of artillery, yet the loss both to the garrison and people did not exceed 500 persons, most of whom were women and children. After a fortnight of fruitless labour the Austrians raised the siege.

134 War declared against the king of Sardinia, Savoy taken, &c.

War had been declared against the king of Sardinia on account of the threatening appearances exhibited in that quarter. On the 20th of September general Montesquieu entered the territories of Savoy, and was received at Chambery and throughout the whole country with marks of unbounded welcome. On the 29th general Anselm, with another body of troops, took possession of Nice and the country around it. On the 30th general Custine advanced to Spires, when he found the Austrians drawn up in order of battle. He attacked and drove them through the city, taking 3000 of them prisoners. The capture of Worms succeeded that of Spires; Mentz surrendered by capitulation; and Franckfort fell into the hands of the French on the 23d. Out of this last place, however, they were afterwards driven on the 2d of December.

135 The national convention assembles,

On the 20th of September the French *National Convention* assembled. It was found to contain men of all characters, orders, and ranks. Many distinguished members of the *Constituting* Assembly were elected into it, and also several that had belonged to the *Legislative* Assembly; even foreigners were invited to become French legislators. The famous Thomas Paine and Dr Priestley of England were elected by certain departments; but the latter declined accepting. Clouts a Prussian, whom we formerly noticed as bringing a deputation to the bar of the constituent assembly, consisting of persons representing all the nations of the earth, was also chosen. The general aspect of the new convention showed that the republican party had acquired a decided superiority. On the first day of meeting M. Collot D'Herbois, who had formerly been an actor, ascended the tribune, and proposed *the eternal abolition of royalty in France.* The question was carried by acclamation, and the house adjourned. Messages were sent to all parts of the country to intimate the decree, and by the influence of the Jacobins they were everywhere received with applause. It was next day decreed, that all public acts should be dated by the year of the French republic; and all citizens were declared eligible to all the vacant offices and places. The rage of republicanism soon went so far, that the ordinary titles of Monsieur and Madame were abolished, and the appellation of *Citizen* substituted in their stead, as more suitable to the principles of liberty and equality.—It may be remarked, that in this last trifling circumstance an attachment to the form of speech to which they had been accustomed appears even in its abolition: For, although the Roman orators addressed their countrymen when assembled by the honourable appellation of *Citizens*, yet they never, in accosting an individual, called him Citizen Cato, or Citizen Cæsar, according to the mode now adopted in France.

136 And decrees the eternal abolition of royalty in France.

French Revolution 1792.

It was soon discovered that the leading republicans had divided into two opposite factions. The one of these was called *Girondists*, because Vergniaud, Gensonné, Condorcet, and some others of its leaders, were members from the department of La Gironde. The celebrated Condorcet belonged to this party; and they were sometimes denominated *Brissotins*, from M. Brissot de Warville their principal leader. They supported the ministry now in office, at the head of which was Roland; and the majority of the convention was obviously attached to them. In opposition to these was the smaller party of the *Mountain*; so called from its members actually sitting in the convention on the upper seats of the hall. They were men possessed of less personal respectability, and fewer literary accomplishments, but of daring and sanguinary characters, whom the revolution had brought into public notice. At the head of this party were Danton and Robespierre; and subordinate to these were Couthon, Bazire, Thuriot, Merlin de Thionville, St André, Camille Demoulins, Chabot, Collot D'Herbois, Sergent, Legendre, Fabre D'Eglantine, Panis, and Marat.

137 Two parties in the convention.

These two parties showed the diversity of their characters in the manner in which they treated the massacres of the 2d and 3d of September. The Brissotines, with the majority of the convention, wished to bring the murderers to trial; but the question was always eluded by the other party, with the assistance of the Jacobin club and of the populace.

138 Decree against the emigrants, &c.

On the 9th of October it was decreed, that all emigrants, when taken, should suffer death; and on the 15th of November, in consequence of an insurrection in the duchy of Deux Ponts, and an application on the part of the insurgents to the convention for aid, the following decree was passed: "The national convention declare, in the name of the French nation, that they will grant fraternity and assistance to all those people who wish to procure liberty; and they charge the executive power to send orders to the generals to give assistance to such people as have suffered, or are now suffering, in the cause of liberty." Of this decree foreign nations, with great reason, complained much, as will shortly appear.

139 Battle of Jemappe, and French drive the Austrian Netherlands.

To return to the military affairs of the new republic. On the 12th of October General Dumourier came to Paris, and was speedily sent to commence a winter campaign in the Netherlands. He suddenly attacked the Austrians at the village of Boffu, and drove them from their ground. On the 5th of November he came in sight of the enemy upon the heights of *Jemappe*. Three rows of fortifications arose above each other defended by 100 pieces of cannon. Their right was covered by the village and a river, and their left by thick woods. The French were by their own account 30,000, whilst others with great probability of truth compute them at double that number, and the number of the Austrians was at least 20,000. At seven in the morning of the following day a heavy cannonade commenced on both sides, and at noon a close attack was determined on by the French, whose right wing was commanded by Generals Bournonville and Dampierre, and the centre by Generals Egalité (son to the duke of Orleans who had assumed that name), Stetenbosse, Desporets, and Drouet. The music played the popular march of the Marseillois, and the soldiers rushed on with enthusiasm, shouting "Vive la nation." The engagement was warm and bloody; the French were twice repulsed; but their impetuosity was at last irresistible, and about two o'clock the enemy fled from their last entrenchments. The loss on both sides was very great, that of the Austrians amounting to 4000. This victory was decisive of the fate of the Netherlands. Mons and Brussels surrendered to Dumourier; Tournay, Malines, Ghent, and Antwerp, were taken possession of by General Labourdonnaye; Louvain and Namur were taken by General Valence; and the whole Austrian Netherlands, Luxembourg only excepted, fell into the hands of the French: Liege was taken on the 28th of November after a successful engagement, in which the Austrians lost 5 or 600 men and an immense train of artillery.

French Revolution 1792.

140 Violent contest between Girondists and the Mountain.

France was now in a situation not unusual in the history of those nations that either are free, or are attempting to become so; successful in all quarters abroad, but distracted by factions at home. The two parties in the convention were engaged in a struggle, which daily became more implacable. The party called the *Mountain* did not hesitate about the nature of the means they were to employ to bring about the ruin of their antagonists. They are even suspected of having, through the medium of Pache the war-minister, retarded the supply of the armies, to render the ruling party odious by want of success. They were for some time, however, unfortunate in this respect; and the daily news of victories supported with the public the credit of the Girondists. A new subject was therefore fall upon, which was the question, how the dethroned king was to be disposed of? The moderate party wished to save him; and this was a sufficient reason for their antagonists to resolve upon his ruin. A committee was appointed to give in a report upon his conduct. A variety of accusations were brought against him; and the convention infamously resolved to act the part of accusers and of judges.

141 The king brought to trial.

It was on the 11th of December when the ill-fated monarch was ordered to the bar of the convention: the act of accusation was read, and the king was summoned by the president, Barrere, to answer to each separate charge.

Pres. "Louis, the French nation accuses you of having committed a multitude of crimes to establish your tyranny, in destroying her freedom. You, on the 20th of June 1789, attempted the sovereignty of the people, by suspending the assemblies of their representatives, and expelling them with violence from the places of their sittings. This is proved in the process verbal entered at the Tennis-court of Versailles by the members of the constituent assembly. On the 23d of June you wanted to dictate laws to the nation; you surrounded their representatives with troops; you presented to them two royal declarations, subversive of all liberty, and ordered them to separate. Your own declarations, and the minutes of the assembly, prove these attempts. What have you to answer?"

Louis. "No laws were then existing to prevent me from it."

Pres. "You ordered an army to march against the citizens of Paris. Your satellites have shed the blood of several of them, and you would not remove this army till the taking of the Bastile and a general insurrection announced to you that the people were victorious. The speeches

speeches you made on the 9th, 12th, and 14th of July to the deputations of the conſtituent aſſembly, ſhew what were your intentions; and the maſſacres of the Thuilleries riſe in evidence againſt you.—What have you to anſwer?"

Louis. "I was maſter at that time to order the troops to march; but I never had an intention of ſhedding blood."

Pref. "After theſe events, and in ſpite of the promiſes which you made on the 15th in the conſtituent aſſembly, and on the 17th in the town-houſe of Paris, you have purſued in your projects againſt national liberty. You long eluded the execution of the decrees of the 11th of Auguſt, reſpecting the abolition of perſonal ſervitude, the feudal government, and tythes: you long refuſed acknowledging the rights of man: you doubled the number of the life-guards, and called the regiment of Flanders to Verſailles: you permitted, in orgies held before your eyes, the national cockade to be trampled under foot, the white cockade to be hoiſted, and the nation to be ſlandered. At laſt, you rendered neceſſary a freſh inſurrection, occaſioned the death of ſeveral citizens, and did not change your language till after your guards had been defeated, when you renewed your perfidious promiſes. The proofs of theſe facts are in your obſervations of the 18th of September, in the decrees of the 11th of Auguſt, in the minutes of the conſtituent aſſembly, in the events of Verſailles of the 5th and 6th of October, and in the converſation you had on the ſame day with a deputation of the conſtituent aſſembly, when you told them you would enlighten yourſelf with their councils, and never recede from them.—What have you to anſwer?"

Louis. "I have made the obſervations which I thought juſt on the two firſt heads. As to the cockade, it is falſe; it did not happen in my preſence."

Pref. "You took an oath at the federation of the 14th of July, which you did not keep. You ſoon tried to corrupt the public opinion, with the aſſiſtance of Talon who acted in Paris, and Mirabeau who was to have excited counter-revolutionary movements in the provinces.—What have you to anſwer?"

Louis. "I do not know what happened at that time; but the whole is anterior to my acceptance of the conſtitution."

Pref. "You laviſhed millions of money to effect this corruption, and you would even uſe popularity as a means of enſlaving the people. Theſe facts are the reſult of a memorial of Talon, on which you have made your marginal comments in your own hand-writing, and of a letter which Laporte wrote to you on the 19th of April; in which, recapitulating a converſation he had with Rivarol, he told you, that the millions which you had been prevailed upon to throw away had been productive of nothing. For a long time you had meditated on a plan of eſcape. A memorial was delivered to you on the 28th of February, which pointed out the means for you to effect it; you approve of it by marginal notes.—What have you to anſwer?"

Louis. "I felt no greater pleaſure than that of relieving the needy: this proves no deſign."

Pref. "On the 28th a great number of the nobles and military came into your apartments in the caſtle of the Thuilleries to favour that eſcape: you wanted to quit Paris on the 18th of April to go to St Claud.—What have you to anſwer?"

Louis. "This accuſation is abſurd."

Pref. "But the reſiſtance of the citizens made you ſenſible that their diſdain was great; you endeavoured to diſcard it by communicating to the conſtituent aſſembly a letter, which you addreſſed to the agents of the nation near foreign powers, to announce to them that you had freely accepted the conſtitutional articles, which had been preſented to you; and, notwithſtanding, on the 21ſt you took flight with a falſe paſſport. You left behind a proteſt againſt thoſe ſelf-ſame conſtitutional articles; you ordered the miniſters to ſign none of the acts iſſued by the National Aſſembly; and you forbade the miniſter of juſtice to deliver up the ſeals of ſtate. The public money was laviſhed to inſure the ſucceſs of this treachery, and the public force was to protect it, under the orders of Bouillé, who ſhortly before had been charged with the maſſacre of Nancy, and to whom you wrote on this head, "to take care of his popularity, becauſe it would be of ſervice to you." Theſe facts are proved by the memorial of the 28d of February, with marginal comments in your own hand-writing; by your declaration of the 20th of June, wholly in your own hand-writing; by your letter of the 4th of September 1790 to Bouillé; and by a note of the latter, in which he gives you an account of the uſe he made of 993,000 livres, given by you, and employed partly in tampering the troops who were to eſcort you.—What have you to anſwer?"

Louis. "I have no knowledge whatever of the memorial of the 23d of February. As to what relates to my journey to Varennes, I appeal to my declaration to the commiſſaries of the conſtituent aſſembly at that period."

Pref. "After your detention at Varennes, the exerciſe of the executive power was for a moment ſuſpended in your hand, and you again formed a conſpiracy. On the 17th of July the blood of citizens was ſhed in the Champ de Mars. A letter, in your own hand-writing, written in 1792 to La Fayette, proves that a criminal coalition ſubſiſted between you and La Fayette, to which Mirabeau acceded. The reviſion began under theſe cruel auſpices; all kinds of corruptions were made uſe of. You have paid for libels, pamphlets, and newſpapers, deſigned to corrupt the public opinion, to diſcredit the aſſignats, and to ſupport the cauſe of the emigrants. The regiſters of Septeuil ſhew what immenſe ſums have been made uſe of in theſe liberticide manœuvres.—What have you to anſwer?"

Louis. "What happened on the 17th of July has nothing at all to do with me. I know nothing of it."

Pref. "You ſeemed to accept the conſtitution on the 14th of September; your ſpeeches announced an intention of ſupporting it, and you were buſy in overturning it, even before it was completed. A convention was entered into at Pilnitz on the 24th of July, between Leopold of Auſtria and Frederic-William of Brandenburgh, who pledged themſelves to re-erect in France the throne of abſolute monarchy, and you were ſilent upon this convention till the moment when it was known by all Europe.—What have you to anſwer?"

Louis. "I made it known as ſoon as it came to my knowledge; beſides, every thing that refers to this ſubject concerns the miniſter."

Pref.

Pref. "Arles had hoisted the standard of rebellion; you favoured it by sending three civil commissaries, who made it their business not to repress the counter-revolutionists, but to justify their proceedings.—What have you to answer?"

Louis. "The instructions which were given to the commissaries must prove what was their mission; and I knew none of them when the ministers proposed them to me."

Pref. "Avignon, and the county of Venaissin, had been united with France; you caused the decree to be executed; but a month after that time civil war desolated that country. The commissaries you sent thither helped to ravage it.—What have you to answer?"

Louis. "I do not remember what delay has been caused in the execution of the decree; besides, this occurrence has no personal reference to me; it only concerns those that have been sent, not those who sent them."

Pref. "Nimes, Montauban, Mende, Jales, felt great shocks during the first days of freedom. You did nothing to stifle those germens of counter-revolution till the moment when Saillant's conspiracy became manifestly notorious.—What have you to answer?"

Louis. "I gave, in this respect, all the orders which were proposed to me by the ministers."

Pref. "You sent 22 battalions against the Marseillois, who marched to reduce the counter-revolutionists of Arles.—What have you to answer?"

Louis. "I ought to have the pieces referring to this matter, to give a just answer."

Pref. "You gave the southern command to Witgenstein, who wrote to you on the 21st of April 1792, after he had been recalled: 'A few instants more, and I shall call around the throne of your Majesty thousands of French, who are again become worthy of the wishes you form for their happiness.'—What have you to answer?"

Louis. "This letter is dated since his recall; he has not been employed since. I do not recollect this letter."

Pref. "You paid your late life-guards at Coblentz; the registers of Septeuil attest this; and general orders signed by you prove that you sent considerable remittances to Bouille, Rochefort, Vauguyon, Choiseul, Beaupre, Hamilton, and the wife of Polignac.—What have you to answer?"

Louis. "When I first learned that my life-guards assembled beyond the Rhine, I stopped their pay: as to the rest, I do not remember?"

Pref. "Your brothers, enemies to the state, caused the emigrants to rally under their banners: they raised regiments, took up loans, and concluded alliances in your name: you did not disclaim them; but at the moment when you were fully certain that you could no longer cross their projects, your intelligence with them by a note, written by Louis Stanislaus Xavier, signed by your two brothers, was conceived in these words:

'I wrote to you, but it was by post, and I could say nothing. We are two here, who make but one; one in sentiments, one in principles, one in zeal of serving you. We keep silence; because, were we to break it too soon, it would injure you: but we shall speak as soon as we shall be certain of general support, and that moment is near. If we are spoken to on the part of those people, we shall hear nothing; but if on your part, we will listen: we shall pursue our road straight. It is therefore desired that you will enable us to say something. Do not stand on ceremonies. Be easy about your safety: we only exist to serve you; we are eagerly occupied with this point, and all goes on well; even our enemies feel themselves too much interested in your preservation to commit an useless crime which would terminate in their own destruction. Adieu.

'L. S. Xavier and

'Charles Philippe.'

"What have you to answer?"

Louis. "I disowned all the proceedings of my brothers, according as the constitution prescribed me to do, and from the moment they came to my knowledge. Of this note I know nothing."

Pref. "The soldiers of the line, who were to be put on the war establishment, consisted but of 100,000 men at the end of December, you therefore neglected to provide for the safety of the state from abroad. Narbonne required a levy of 50,000 men, but he stopped the recruiting at 26,000, in giving assurances that all was ready; yet there was no truth in these assurances. Servan proposed after him to form a camp of 20,000 men near Paris; it was decreed by the legislative assembly; you refused your sanction.—What have you to answer?"

Louis. "I had given to the ministers all the orders for expediting the augmentation of the army: in the month of December last, the returns were laid before the Assembly. If they deceived themselves, it is not my fault."

Pref. "A flight of patriotism made the citizens repair to Paris from all quarters. You issued a proclamation, tending to stop their march; at the same time our camps were without soldiers. Dumourier, the successor of Servan, declared that the nation had neither arms, ammunition, nor provisions, and that the posts were left defenceless. You waited to be urged by a request made to the minister Lajard, when the legislative assembly wished to point out the means of providing for the external safety of the state, by proposing the levy of 42 battalions. You gave commission to the commanders of the troops to disband the army, to force whole regiments to desert, and to make them pass the Rhine, to put them at the disposal of your brothers, and of Leopold of Austria, with whom you had intelligence. This fact is proved by the letter of Toulougeon, governor of Franche Comté.—What have you to answer?"

Louis. "I know nothing of this circumstance; there is not a word of truth in this charge."

Pref. "You charged your diplomatical agents to favour this coalition of foreign powers and your brothers against France, and especially to cement the peace between Turkey and Austria, and to procure thereby a larger number of troops against France from the latter. A letter of Choiseul-Gouffier, ambassador at Constantinople, verifies the fact.—What have you to answer?"

Louis. "M. Choiseul did not speak the truth: no such thing has ever been."

Pref. "The Prussians advanced against our frontiers: your minister was summoned on the 8th of July to give an account of the state of our political relations with

with Prussia; you answered, on the 10th, that 50,000 Prussians were marching against us, and that you gave notice to the legislative body of the formal acts of the pending hostilities, in conformity to the constitution. —What have you to answer?"

Louis. "It was only at that period I had knowledge of it: all the correspondence passed with the ministers."

Pres. "You entrusted Dabancourt, the nephew of Calonne, with the department of war; and such has been the success of your conspiracy, that the posts of Longwy and Verdun were surrendered to the enemy at the moment of their appearance.—What have you to answer?"

Louis. "I did not know that Dabancourt was M. Calonne's nephew. I have not divested the posts. I would not have permitted myself such a thing. I know nothing of it, if it has been so."

Pres. "You have destroyed our navy—a vast number of officers belonging to that corps had emigrated; there scarcely remained any to do duty in the harbours; meanwhile Bertrand was granting passports every day; and when the legislative body represented to you his criminal conduct on the 8th of March, you answered, that you were satisfied with his services.—What have you to answer?"

Louis. "I have done all I could to retain the officers. As to M. Bertrand, since the legislative assembly presented no complaint against him that might have put him in a state of accusation, I did not think proper to turn him out of office."

Pres. "You have favoured the maintenance of absolute government in the colonies; your agents fomented troubles and counter-revolutions throughout them, which took place at the same epoch when it was to have been brought about in France, which indicates plainly that your hand laid this plot.—What have you to answer?"

Louis. "If there are any of my agents in the colonies, they have not spoken the truth; I had nothing to do with what you have just mentioned."

Pres. "The interior of the state was convulsed by fanatics; you avowed yourself their protector, in manifesting your evident intention of recovering by them your ancient power.—What have you to answer?"

Louis. "I cannot answer to this; I know nothing of such a project."

Pres. "The legislative body had passed a decree on the 29th of January against the factious priests; you suspended its execution.—What have you to answer?"

Louis. "The constitution reserved to me the free right to refuse my sanction of the decrees."

Pres. "The troubles had increased; the minister declared, that he knew no means in the laws extant to arraign the guilty. The legislative body enacted a fresh decree, which you likewise suspended.—What have you to say to this?"

[Louis replied in the same manner as in the preceding charge.]

Pres. "The uncitizen-like conduct of the guards whom the constitution had granted you, had rendered it necessary to disband them. The day after, you sent them a letter expressive of your satisfaction, and continued their pay. This fact is proved by the treasurer of the civil list.—What have you to answer?"

Louis. "I only continued them in pay till fresh ones could be raised, according to the tenor of the decree."

Pres. "You kept near your person the Swiss guards: the constitution forbade you this, and the legislative assembly had expressly ordained their departure.—What have you to answer?"

Louis. "I have executed all the decrees that have been enacted in this respect."

Pres. "You had private companies at Paris, charged to operate movements useful to your projects of a counter-revolution. Dangremont and Gilles were two of your agents, who had salaries from the civil list. The receipts of Gilles, who was ordered to raise a company of 60 men, shall be presented to you.—What have you to answer?"

Louis. "I have no knowledge whatever of the projects laid to their charge: the idea of a counter-revolution never entered into my mind."

Pres. "You wished to suborn, with considerable sums, several members of the legislative and constituent assemblies. Letters from St Leon and others evince the reality of these deeds.—What have you to answer?"

Louis. "Several persons presented themselves with similar decrees, but I have waved them"

Pres. "Who are they that presented you with those projects?"

Louis. "The plans were so vague that I do not recollect them now."

Pres. "Who are those to whom you gave money?"

Louis. "I gave money to nobody."

Pres. "You suffered the French name to be reviled in Germany, Italy, and Spain, since you omitted to demand satisfaction for the bad treatment which the French suffered in those countries.—What have you to answer?"

Louis. "The diplomatical correspondence will prove the contrary; besides, this was a concern of the ministers."

Pres. "You reviewed the Swiss on the 10th of August at five o'clock in the morning; and the Swiss were the first who fired upon the citizens."

Louis. "I went on that day to review all the troops that were assembled about me; the constituted authorities were with me, the department, the mayor, and municipality; I had even invited thither a deputation of the national assembly, and I afterwards repaired into the midst of them with my family."

Pres. "Why did you draw troops to the castle?"

Louis. "All the constituted authorities saw that the castle was threatened; and as I was a constituted authority, I had a right to defend myself."

Pres. "Why did you summon the mayor of Paris in the night between the 9th and 10th of August to the castle?"

Louis. "On account of the reports that were circulated."

Pres. "You have caused the blood of the French to be shed."

Louis. "No, Sir, not I."

Pres. "You authorized Septeuil to carry on a

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considerable trade in corn, sugar, and coffee, at Hamburg. This fact is proved by a letter of Septeuil."

Louis. "I know nothing of what you say."

Pres. "Who did you affix a *veto* on the decree which ordained the formation of a camp of 20,000 men?"

Louis. "The constitution left to me the free right of refusing my sanction of the decrees; and even from that period I had demanded the assemblage of a camp at Soissons."

President, addressing the convention. "The questions are done with."—(To Louis)—"Louis, is there any thing that you wish to add?"

Louis. "I request a communication of the charges which I have heard, and of the pieces relating thereto, and the liberty of choosing counsel for my defence."

Valazé, who sat near the bar, presented and read to Louis Capet the pieces, viz. The memoir of Laporte and Mirabeau, and some others, containing plans of a counter-revolution.

Louis. "I disown them."

Valazé next presented several other papers, on which the act of accusation was founded, and asked the king if he recognized them. These papers were the following:

Valazé. "Letter of Louis Capet, dated June 29th 1790, settling his connections with Mirabeau and La Fayette to effect a revolution in the constitution."

Louis. "I reserve to myself to answer the contents"—(Valazé read the letter.)—"It is only a plan, in which there is no question about a counter-revolution; the letter was not to have been sent."

Valazé. "Letter of Louis Capet, of the 22d of April, relative to conversations about the Jacobins, about the president of the committee of finances, and the committee of domains; it is dated by the hand of Louis Capet."

Louis. "I disown it."

Valazé. "Letter of Laporte, of Thursday morning, March 3d, marked in the margin in the hand-writing of Louis Capet with March 3d 1791, implying a pretended rupture between Mirabeau and the Jacobins."

Louis. "I disown it."

Valazé. "Letter of Laporte without date, in his hand-writing, but marked in the margin by the hand of Louis Capet, containing particulars respecting the last moments of Mirabeau, and expressing the care that had been taken to conceal from the knowledge of men some papers of great concern which had been deposited with Mirabeau."

Louis. "I disown it as well as the rest."

Valazé. "Plan of a constitution, or revision of the constitution, signed La Fayette, addressed to Louis Capet, April 6th 1790, marked in the margin with a line in his own hand-writing."

Louis. "These things have been blotted out by the constitution."

Valazé. "Do you know this writing?"

Louis. "I do not."

Valazé. "Your marginal comments?"

Louis. "I do not."

Valazé. "Letter of Laporte of the 19th of April, marked in the margin by Louis Capet April 19. 1791, mentioning a conversation with Rivarol."

Louis. "I disown it."

Valazé. "Letter of Laporte, marked April 16. 1791, in which it seems complaints are made of Mirabeau, the abbé Perigord, André, and Beaumetz, who do not seem to acknowledge sacrifices made for their sake."

Louis. "I disown it likewise."

Valazé. "Letter of Laporte of the 23d of February 1791, marked and dated in the hand-writing of Louis Capet; a memorial annexed to it, respecting the means of his gaining popularity."

Louis. "I know neither of these pieces."

Valazé. "Several pieces without signature, found in the castle of the Thuilleries, in the gap which was shut in the walls of the palace, relating to the expences to gain that popularity."

President. "Previous to an examination on this subject, I wish to ask a preliminary question: Have you caused a press with an iron door to be constructed in the castle of the Thuilleries, and had you your papers locked up in that press?"

Louis. "I have no knowledge of it whatever."

Valazé. "Here is a day-book written by Louis Capet himself, containing the pensions he has granted out of his coffer from 1776 till 1792, in which are observed some douceurs granted to Acloque."

Louis. "This I own, but it consists of charitable donations which I have made."

Valazé. "Different lists of sums paid to the Scotch companies of Noailles, Gramont, Montmorency, and Luxembourg, on the 9th of July 1791."

Louis. "This is prior to the epoch when I forbade them to be paid."

Pres. "Louis, where had you deposited those pieces which you own?"

Louis. "With my treasurer."

Valazé. "Do you know these pension-lists of the life-guards, the one hundred Swiss, and the king's guards for 1792?"

Louis. "I do not."

Valazé. "Several pieces relative to the conspiracy of the camp of Jales, the originals of which are deposited among the records of the department of L'Ardèche."

Louis. "I have not the smallest knowledge of them."

Valazé. "Letter of Bouillé, dated Mentz, bearing an account of 993,000 livres received of Louis Capet."

Louis. "I disown it."

Valazé. "An order for payment of 168,000 livres, signed Louis, indorsed Le Bonneirs, with a letter and billet of the same."

Louis. "I disown it."

Valazé. "Two pieces relative to a present made to the wife of Polignac, and to Lavauguyon and Choiseul."

Louis. "I disown them as well as the others."

Valazé. "Here is a note signed by the two brothers of the late king, mentioned in the declaratory act."

Louis. "I know nothing of it."

Valazé. "Here are pieces relating to the affair of Choiseul-Gouffier at Constantinople."

Louis. "I have no knowledge of them."

Valazé. "Here is a letter of the late king to the bishop of Clermont, with the answer of the latter, of the 16th of April 1791."

Louis. "I disown it."

President. "Do you not acknowledge your writing and your signet?"

Louis. "I do not."

President. "The seal bears the arms of France."

Louis. "Several persons made use of that seal."

Valazé. "Do you acknowledge this list of sums paid to Gilles?"

Louis. "I do not."

Valazé. "Here is a memorandum for indemnifying the civil list for the military pensions; a letter of Dufresne St Leon, which relates to it."

Louis. "I know none of these pieces."

When the whole had been investigated in this manner, the president, addressing the king, said, "I have no other questions to propose—have you any thing more to add in your defence?"—"I desire to have a copy of the accusation (replied the king), and of the papers on which it is founded. I also desire to have a counsel of my own nomination." Barrere informed him, that his two first requests were already decreed, and that the determination respecting the other would be made known to him in due time.

It would have been an excess of cruelty to refuse a request so reasonable in itself; it was therefore decreed that counsel should be allowed to the king, and his choice fell upon M. M. Tronchet, Lamoignon Malesherbes, and Deseze; he had previously applied to M. Target, who excused himself on account of his age and infirmity. On the 26th of December, the king appeared for the last time at the bar of the convention; and M. Deseze read a defence which the counsel had prepared, and which was equally admired for the solidity of the argument and the beauty of the composition.

When the defence was finished, the king arose, and holding a paper in his hand, pronounced in a calm manner, and with a firm voice, what follows: "Citizens, you have heard my defence; I now speak to you, perhaps for the last time, and declare that my counsel have asserted nothing to you but the truth; my conscience reproaches me with nothing: I never was afraid of having my conduct investigated; but I observed with great uneasiness, that I was accused of giving orders for shedding the blood of the people on the 10th of August. The proofs I have given through my whole life of a contrary disposition, I hoped would have saved me from such an imputation, which I now solemnly declare is entirely groundless."

The discussion was fatally closed on the 16th of January. After a sitting of near 34 hours, the punishment of death was awarded by a small majority of the convention, and several of these differed in opinion from the rest, respecting the time when it should be inflicted; some contending that it should not be put in execution till after the end of the war, while others proposed to take the sense of the people, by referring the sentence to the primary assemblies.

M. Deseze then solemnly invoked the assembly in the name of his colleagues, to consider by what a small majority the punishment of death was pronounced against the dethroned monarch. "Do not afflict France (added this eloquent advocate) by a judgment that will appear terrible to her, when *five* voices only were presumed sufficient to carry it." He appealed to eternal justice, and sacred humanity, to induce the convention to refer their sentence to the tribunal of the people. "You have either forgotten or destroyed (said the celebrated M. Tronchet) the lenity which the law allows to criminals, of requiring at least *two-thirds* of the voices to constitute a definitive judgment."

The sentence was ordered to be executed in twenty-four hours.

The king and his family had been for some time kept separate from each other; but he was now allowed to see them, and to choose an ecclesiastic to attend him. The meeting, and, above all, the separation from his family, was tender in the extreme. On Monday the 21st January, at eight o'clock in the morning, the unfortunate monarch was summoned to his fate. He ascended the scaffold with a firm air and step. Raising his voice, he said, "Frenchmen, I die innocent; I pardon all my enemies; and may France"—at this instant the inhuman Santerre ordered the drums to beat, and the executioners to perform their office. When they offered to bind his hands, he started back as if about to resist; but recollected himself in a moment, and submitted. When the instrument of death descended, the priest exclaimed, "Son of St Louis, ascend to heaven." The bleeding head was held up, and a few of the populace shouted *Vive la Republique*. His body was interred in a grave that was filled up with quicklime, and a guard placed around till it should be consumed.

Thus fell Louis XVI. He possessed from nature a good understanding, which, however, was blunted by the early indulgences of a court. He had a strong sense of justice, and his humanity was perhaps extreme. One defect rendered his virtues of little value, which was the possession of an irresolute and unsteady character. Unambitious, and easily advised, he was without difficulty induced to change his purposes, especially by his queen, whose connection with the house of Austria had always tended to render his counsels unpopular. Whether he was or was not connected with the foreign invaders of his country, posterity must decide; but all men of sense and moderation must be convinced that he was murdered by a band of ruffians. Indeed a sentence so infamous, and in all respects unjust, is not to be found in the records of history. The greater part of the charges brought against him were trifling. Those which seem to be of importance relate to conduct authorized by the constitution under which he acted; and that constitution declared his person inviolable. The severest punishment that he could incur by law, was not death, but deposition; and there is no doubt, that in putting him to death the French nation broke the social compact which their representatives made with him. In a political view, this tragical event was injurious to the republican cause throughout Europe. No man out of France ventured to justify it; and in all countries it excited the most violent indignation against the rulers of the new republic.

New enemies were now hastening to join the general league against France. We do not mean here to enter into a detail of the political struggles that occurred in any other country, than that in the narrative of whose revolution we are now engaged. It will therefore only be necessary to remark in general, that the British goverment at this time thought itself endangered by the propagation of those speculative opinions which had overturned

French Revolution, 1793.

144 Executed.

145 Character of this unfortunate monarch.

146 Rupture with Great Britain.

French Revolution. 1793.

overturned the French monarchy. Almost all the men of property in the kingdom concurred with the ministry in thinking a war with France necessary for the purpose of securing the constitution at home. After the 10th of August the British minister had been recalled; but the new republic still suffered the former ambassador from France, M. Chauvelin, to remain in England.

147 Grounds of the quarrel on the part of Great Britain.

The ostensible grounds of quarrel on the part of Great Britain were chiefly two; the decree of the 15th of November 1792, by which it was truly observed that encouragement to rebellion was held out to the subjects of every state, and that war was thereby waged against every established government. Of this decree the French executive council gave explanations, denying the fairness of the interpretation put upon it, and alleging, that the intention of the convention was only to give aid to such countries as *had already* acquired their freedom, and by a declaration of the general will requested aid for its preservation. But this explanation cannot be admitted. The decree expressly says, that the French nation will *grant assistance to all who wish to procure liberty;* and when it is considered what their notions of liberty are, it cannot be doubted but that their intention was to excite rebellion in foreign nations. The second point of dispute referred to the opening of the Scheldt. This river runs from Brabant through the Dutch territory to the sea. The Dutch had shut up the mouth of it, and prevented any maritime commerce from being carried on by the people of Brabant by means of the river. To render themselves popular in Brabant, the French had declared, that they would open the navigation of the Scheldt. But Great Britain had some time before bound herself by treaty with the Dutch to assist them in obstructing this navigation, and now declared to the French, that the project of opening the Scheldt must be renounced if peace with Great Britain was to remain. The French alleged, that by the law of nations navigable rivers ought to be open to all who reside on their banks; but that the point was of no importance either to France or England, and even of very little importance to Holland; that if the people of Brabant themselves chose to give it up, they would make no objection. It has been thought remarkable, that the Dutch gave themselves no trouble about the matter. They did not ask the assistance of England; and with that coolness which is peculiar to their character, the merchants individually declared, that if the Scheldt was opened, they could manage their commerce as well at Antwerp as at Amsterdam. But in all this there is nothing strange. Among the Dutch were many republicans, who wished for the downfal of the stadtholder. These rejoiced at every thing which distressed him, or had a tendency to render his office useless in the eyes of the people. Others, who thought differently, were afraid to speak their sentiments, as Dumourier was in their neighbourhood with a victorious army. The result of the whole was, that M. Chauvelin was commanded by the British government to leave this country. The French executive council gave powers to another minister, M. Maret, to negociate, and requested a passport for him; but he was not suffered to land. The haughty republicans having thus far humbled themselves before the British government, at last, on the 1st of February 1793, on the motion of Brissot, the national convention decreed, among other articles, that "George king of England had never ceased since the revolution of the 10th of August 1792 from giving to the French nation proofs of his attachment to the concert of crowned heads; that he had drawn into the same lake the stadtholder of the United Provinces; that, contrary to the treaty of 1783, the English ministry had granted protection to the emigrants and others who have openly appeared in arms against France; that they have committed an outrage against the French republic, by ordering the ambassador of France to quit Great Britain; that the English have stopped divers boats and vessels laden with corn for France, whilst, at the same time, contrary to the treaty of 1786, they continue the exportation of it to other foreign countries; that to thwart more efficaciously the commercial transactions of the republic with England, they have by an act of parliament prohibited the circulation of assignats. The convention therefore *declare*, that in consequence of these acts of hostility and aggression, the French republic is at war with the king of England and the stadtholder of the United Provinces."

148 War declared against the king of England and stadtholder of Holland,

The absurdity of pretending that any treaty with France made in 1783 could be violated by protecting the emigrants who fled from the fury of the convention, must be obvious to every reader. The convention was itself a rebellious usurpation of the government with which such a treaty was made. The prohibition of assignats was certainly contrary to no law, and was sanctioned by every motive of expediency, unless the convention could prove that all nations were bound by the law of nature to risk their own credit upon the credit of the French republic.

14 And against Spain

About a fortnight after this absurd declaration against Britain, war was likewise declared against Spain; and in the course of the summer France was at war with all Europe, excepting only Swisserland, Sweden, Denmark, and Turkey.

15 Progress of Dumourier.

In the mean time General Dumourier, who was proceeding agreeably to his orders, made an attack upon Holland; but in doing this he dispersed his troops in such a manner as to expose them much to any attack on the side of Germany. He commanded General Miranda to invest Maestricht, while he advanced to block up Breda and Bergen-op-zoom. The first of these places, viz. Breda, surrendered on the 24th of February; Klundert was taken on the 26th; and Gertruydenberg on the 4th of March. But here the triumphs of Dumourier ended. The sieges of Williamstadt and Bergen-op-zoom were vigorously but unsuccessfully pressed. On the 1st of March General Clairfait having passed the Roer, attacked the French posts, and compelled them to retreat with the loss of 2000 men.

16 He is defeated

The following day the archduke attacked them anew with considerable success. On the 3d the French were driven from Aix-la-Chapelle, with the loss of 4000 men killed and 1600 taken prisoners.

The siege of Maestricht was now raised, and the French retreated to Tongres, where they were also attacked and forced to retreat to St Tron. Dumourier here joined them, but did not bring his army along with him from the attack upon Holland. After some skirmishes a general engagement took place at Neerwinden. It was fought on the part of the French with great obstinacy; but they were at length overpowered by the number of their enemies, and perhaps also by the treachery of their commander. This defeat was fatal. The French lost 3000 men, and 6000 immediately

immediately deserted and went home to France. Dumourier continued to retreat, and on the 22d he was again attacked near Louvain. He now, through the medium of Colonel Mack, came to an agreement with the Imperialists that his retreat should not be seriously interrupted. It was now fully agreed between him and the Imperialists, that while the latter took possession of Condé and Valenciennes, he should march to Paris, dissolve the convention, and place the son of the late king upon the throne.

The rapid retreat and successive defeats of General Dumourier rendered his conduct suspicious. Commissioners were sent from the executive power for the purpose of discovering his designs. They dissembled, and pretended to communicate to him a scheme of a counter-revolution. He confessed his intention of dissolving the convention and the Jacobin club by force, which he said would not exist three weeks longer, and of restoring monarchy. On the report of these commissioners the convention sent Bournonville the minister of war to supersede and arrest Dumourier, along with Camus, Blancal, La Marque, and Quinette, as commissioners. The attempt on the part of these men was at least hazardous, to say no more of it; and the result was, that on the first of April Dumourier sent them prisoners to General Clairfait's head quarters at Tournay as hostages for the safety of the royal family. He next attempted to seduce his army from their fidelity to the convention; but he speedily found that he had much mistaken the character of his troops. Upon the report that their general was to be carried as a criminal to Paris, they were seized with sudden indignation; but when they found that an attempt was making to prevail with them to turn their arms against their country, their sentiments altered. On the 5th of April two proclamations were issued; one by General Dumourier, and the other by the prince of Saxe Cobourg, declaring that their only purpose was to restore the constitution of 1789, 1790, and 1791. Prince Cobourg announced that the allied powers wished merely to co-operate with General Dumourier in giving to France her constitutional king and the constitution she had formed for herself, declaring, on his word of honour, that he came not to the French territory for the purpose of making conquests. On the same day Dumourier went to the advanced guard of his own camp at Maulde. He there learned that the corps of artillery had risen upon their general, and were marching to Valenciennes; and he soon found that the whole army had determined to stand by their country. Seven hundred cavalry and 800 infantry was the whole amount of those that deserted with Dumourier to the Austrians, and many of them afterwards returned.

By the defection of Dumourier, however, the whole army of the north was dissolved, and in part disbanded, in presence of a numerous, well-disciplined, and victorious enemy. The Prussians were at the same time advancing on the Rhine with an immense force, and about to commence the siege of Mentz. In the interior of the republic more serious evils if possible were arising. In the departments of La Vendée and La Loire, or the Provinces of Brittany and Poitou, immense multitudes of emigrants and other royalists had gradually assembled in the course of the winter. They professed to act in the name of Monsieur, as regent of France. About the middle of March they advanced against Nantz to the amount of 40,000. In the beginning of April they defeated the republicans in two pitched battles, and possessed themselves of 50 leagues of country. They even threatened by their own efforts to shake the new republic to its foundation. On the 8th of April a congress of the combined powers assembled at Antwerp. It was attended by the prince of Orange and his two sons, with his excellency Vander Spiegel, on the part of Holland; by the duke of York and Lord Auckland on the part of Great Britain; by the prince of Saxe Cobourg, Counts Metterinch, Starenberg, and Mercy Dargenteau, with the Prussian, Spanish, and Neapolitan envoys. It was here determined to commence active operations against France. The prince of Cobourg's proclamation was recalled, and a scheme of conquest announced.

French Revolution, 1793.

156 Congress of the combined powers.

Commissioners from the convention now set up the standard of the republic anew, and the scattered battalions flocked around it. General Dampierre was appointed commander, and on the 13th he was able to resist a general attack upon his advanced posts. On the 14th, his advanced guard yielded to superior numbers, but on the 15th was victorious in a long and well-fought battle. On the 23d the Austrians were again repulsed, and on the 1st of May General Dampierre was himself repulsed in an attack upon the enemy. On the 8th another engagement took place, in which the French general was killed by a cannon ball. On the 23d a very determined attack was made by the allies upon the French fortified camp of Famars, which covered the town of Valenciennes. The French were overcome, and in the night abandoned their camp. In consequence of this the allies were enabled to commence the siege of Valenciennes; for Condé had been blockaded from the 1st of April.

157 The republican army again assembled.

About the same time General Custine on the Rhine made a violent but unsuccessful attack upon the Prussians, in consequence of which they were soon enabled to lay siege to Mentz. The Corsican General Paoli revolted at this period; and the new republic, assaulted from without by the whole strength of Europe, was undermined by treachery and faction within.

158 Revolt of Paoli.

While the country was in a state verging upon utter ruin, parties in the convention were gradually waxing more fierce in their animosity; and regardless of what was passing at a distance, they seemed only anxious for the extermination of each other. In the month of March, the celebrated *Revolutionary Tribunal* was established for the purpose of trying crimes committed against the state; and the Girondist party, the mildness of whose administration had contributed not a little to increase the evils of their country, began to see the necessity of adopting measures of severity. But the public calamities, which now rapidly followed each other in succession, were ascribed by their countrymen to their imbecillity or perfidy. This gave to the party of the *Mountain* a fatal advantage. On the 15th of April the communes of the 48 sections of Paris presented a petition, requiring that the chiefs of the Girondists therein named should be impeached and expelled from the convention. This was followed up on the 31st of May by another petition from the suburb of St Antoine. The Girondist party in the mean time impeached Marat, but he was acquitted by the jury at his trial. The

159 State of parties in France, and the revolutionary tribunal established.

French Revolution, 1793.

Mountain, by the assistance of the Jacobin club, had now acquired a complete ascendancy over the city of Paris. The Girondists or Brissotines proposed therefore to remove the convention from the capital; and to prevent this, the *Mountain* resolved to make the same use of the people of the capital against the Girondist party that they had formerly done against the monarch on the 10th of August. It is unnecessary to state in detail all the tumults that occurred either in Paris or in the convention during the remaining part of the month of May. On the 31st, at four o'clock in the morning, the tocsin was sounded, the generale was beat, and the alarm guns fired. All was commotion and terror. The citizens flew to arms, and assembled round the convention. Some deputations demanded a decree of accusation against 35 of its members. The day, however, was spent without decision. On the afternoon of the 1st of June an armed force made the same demand. On the 2d of June this was repeated, the tocsin again sounded, and an hundred pieces of cannon surrounded the national hall. At last Barrere mounted the tribune. He was considered as a moderate man, and respected by both parties; but he now artfully deserted the Girondists. He invited the denounced members voluntarily to resign their character of representatives. Some of them complied, and the president attempted to dissolve the sitting; but the members were now imprisoned in their own hall. Henriot, commander of the armed force, compelled them to remain; and the obnoxious deputies, amounting to upwards of 90 in number, were put under arrest, and a decree of denunciation against them signed.

160 The Mountain party get the upper hand.

It is obvious, that on this occasion the liberties of France were trodden under foot. The minority of the national representatives, by the assistance of an armed force raised in the capital, compelled the majority to submit to their measures, and took the leading members prisoners. Thus the city of Paris assumed to itself the whole powers of the French republic; and the nation was no longer governed by representatives freely chosen, but by a minority of their members, whose sentiments the city of Paris and the Jacobin club had thought fit to approve of. Human history is a mass of contradictions. The *Mountain* party came into power by preaching liberty, and by violating its fundamental principles. How far the plea of political necessity may excuse their conduct, we shall not venture to decide explicitly. Certain it is, however, that they soon commenced a career of the most terrible energy both at home and abroad that is to be found in the annals of nations.

161 Several cities and departments revolt in consequence.

The first result of their victory in the capital was calamitous to the republic at large. Brissot and some other deputies escaped, and endeavoured to kindle the flames of civil war. In general, however, the influence of the Jacobin club, and of its various branches, was such, that the north of France adhered to the convention as it stood; but the southern departments were speedily in a state of rebellion. The department of Lyons declared the *Mountain* party outlawed. Marseilles and Toulon followed the example of Lyons, and entered into a confederacy, which has since been known by the appellation of *Federalism*. The departments of La Gironde and Calvades broke out into open revolt. In short, the whole of France was in a state of violent convulsion. Still, however, the enthusiastic garrisons of Mentz and Valenciennes protected it against the immediate entrance of a foreign force, and allowed leisure for one of its internal factions to gain an ascendancy, and thereafter to protect its independence. In the mean time, the political enthusiasm of all orders of persons was such, that even the female sex did not escape its contagion. A young woman of the name of Charlotte Cordé, in the beginning of July, came from the department of Calvades to devote her life for what she thought the cause of freedom and of her country. She requested an interview with *Marat*, the most obnoxious of the Mountain party. Having obtained it, and conversed with him calmly for some time, she suddenly plunged a dagger in his breast, and walked carelessly out of the house. She was immediately seized and condemned. At the place of execution she behaved with infinite constancy, shouting *Vive la republique*.* The remains of Marat were interred with great splendor, and the convention attended his funeral. His party perhaps derived advantage from the manner of his death, as it seemed to fasten the odious charge of assassination upon their antagonists, and gave them the appearance of suffering in the cause of liberty. The truth is, that assassination was sanctioned by both parties under pretence of defending the liberties of the republic.

French Revolution, 17

16 Marat murdered by a woman

16 The republican constitution finished by the Mountain.

One of the first acts of the Mountain junto after their triumph was to finish the republican constitution. Previous to their fall, the Girondists had brought forward the plan of a constitution, chiefly the work of Condorcet; but it never was sanctioned by the convention, and was too intricate to be practically useful. The new constitution now framed, which was afterwards sanctioned by the nation, but has never yet been put in practice, abolishes the former mode of electing the representatives of the people through the medium of *electoral* assemblies, and appoints them to be chosen immediately by the *primary* assemblies, which are made to consist of from 200 to 600 citizens, each man voting by ballot or open vote at his option. There is one deputy for every 40,000 individuals, and population is the sole basis of representation. The elections take place every year on the 1st of May. Electoral assemblies are still retained for one purpose. Every 200 citizens in the primary assemblies name one elector; and an assembly of all the electors of the department is afterwards held, which elects candidates for the *executive council*, or ministry of the republic. The legislative body chooses out of this list of candidates the members of the executive council. One half of this council is renewed by each legislature in the last month of the session. Every law, after it is passed by the legislative body, is sent to the department. If in more than half of the departments the tenth of the primary assemblies of each have not objected to it, it becomes effectual. Trial by jury is established. National conventions may be called for altering the constitution, and *must* be called, if required by the tenth of the primary assemblies of each department in a majority of the departments.

The publication of this constitution procured no small degree of applause to the convention and the Mountain party. The rapidity with which it was formed (being only a fortnight) seemed to cast a just reproach upon the slowness of their antagonists, and it was regarded as a proof of their being decidedly serious

rious in the cause of republicanism. No regard, however, has been paid to it by the convention, which has declared itself permanent, nor indeed does it seem possible to carry it into execution.

We have mentioned that Condé was invested from the beginning of April. It did not yield till the 10th of July, when the garrison was so much reduced by famine and disease, that out of 4000 men, of which it originally consisted, only 1500 were fit for service. The eyes of all Europe were in the mean time fixed upon the siege of Valenciennes. Colonel Moncrieff had contended, that batteries ought immediately to be placed under the walls without approaching it by regular parallels; but the Imperial engineer Mr Ferraris asserted, that the work of the great Vauban must be treated with more respect; and his opinion was adopted by the council of war. The trenches were opened on the 14th of June. Few sallies were attempted by the garrison, on account of the smallness of their number. The inhabitants at first wished to surrender; but the violence of the bombardment prevented their assembling or giving much trouble on that head to General Ferrand the governor. Much of the labour of the siege consisted of mines and countermines. Some of these having been successfully sprung by the allies, the town was surrendered on the 27th of July by capitulation to the Duke of York, who took possession of it in behalf of the emperor of Germany. The siege of Mentz was at the same time going on. It suffered much from famine. At last, after an unsuccessful attempt by the French army on the Rhine for its relief, Mentz surrendered on the 22d of July.

At the termination of the siege of Valenciennes it is said that the allied powers were at a loss how to proceed next. The Austrian commanders are said to have presented two plans: The first was to penetrate to Paris by the assistance of the rivers which fall into the Seine; the other was to take advantage of the consternation occasioned by the surrender of Valenciennes, and with 50,000 light troops to penetrate suddenly to Paris, while a debarkation should be made on the coast of Brittany to assist the royalists. The proposal of the British ministry was, however, adopted, which was, to divide the grand army, and to attack West Flanders, beginning with the siege of Dunkirk. This determination proved ruinous to the allies. The French found means to vanquish in detail that army, which they could not encounter when united.

It is said that the Duke of York was in secret correspondence with Omeron the governor of Dunkirk; but he was removed before any advantage could be taken of his treachery. On the 24th of August the Duke of York attacked and drove the French outposts into the town, after an action in which the Austrian General Dalton was killed. A naval armament was expected from Great Britain to co-operate in the siege, but it did not arrive. In the mean time, a strong republican force menaced the covering army of the allies, which was commanded by General Freytag. He was soon attacked and totally routed. The siege was raised. The British lost their heavy cannon and baggage, with several thousand men; and the convention, believing that their General Houchard could have cut off the Duke of York's retreat, tried and executed him for this neglect of duty.

Prince Cobourg and General Clairfait in the mean time unsuccessfully attempted to besiege Cambray and Bouchain. Quesnoy was, however, taken by General Clairfait on the 11th of September; and here finally terminated for the present campaign the success of the allies in the Netherlands. French Revolution, 1793.

A considerable part of the French army of the north took a strong position near Maubeuge, where they were blockaded by Prince Cobourg; but upon the 15th and 16th of October he was repeatedly attacked by the French troops under General Jourdan, who succeeded Houchard. The French had now recovered their vigour. They brought into the field a formidable train of artillery, in which were many 24 pounders. Commissioners from the convention harangued the soldiers, threatened the fearful, and applauded the brave. Crowds of women, without confusion, went through the ranks, distributing spirituous liquors in abundance, and carrying off the wounded. The attacks were repeated and terrible on both sides; but the Austrians had considerably the disadvantage, and Prince Cobourg retired during the night. The French now menaced maritime Flanders. They took Furnes and besieged Nieuport. A detachment of British troops ready to sail to the West Indies were hastily sent to Ostend, and prevented for the present the farther progress of the French.

Such was the multiplicity of the events that now occurred in France, that it is difficult to state the outlines of them with any tolerable perspicuity. We have already mentioned the extensive dissensions that occurred throughout the republic in consequence of the triumph of the Mountain party on the 31st of May. The department of Calvades was first in arms against the convention under the command of General Felix Wimpfen; but before the end of July the insurrection was quieted, after a few slight skirmishes. But the fœderalism of the cities of Marseilles, Lyons, and Toulon, still remained. Lyons was attacked on the 8th of August by the conventional troops. Several actions followed, which were attended with great loss both on the part of the assailants and of the besieged. The city was reduced almost to ruins; but it held out during the whole month of September. The besieging General Kellerman was removed from his command, on account of his supposed inactivity; and the city surrendered on the 8th of October to General Doppet, a man who had lately been a physician. Such was the rage of party zeal at this time, that the walls and public buildings of Lyons were ordered to be destroyed, and its name changed to that of *Ville Affranchie*. Many hundreds of its citizens were dragged to the scaffold on account of their alleged treasonable resistance to the convention. The victorious party, wearied by the slow operation of the *guillotine*, at last destroyed their prisoners in multitudes, by firing grape-shot upon them. Such indeed was the unrelenting character of the Mountain at this time, not only here but through the whole republic, that they themselves pretended not to excuse it, but declared that terror was with them *the order of the day*.

167 Lyons besieged by the conventional troops, and taken.

168 Unrelenting character of the conquerors.

In the end of July General Cartaux was sent against Marseilles. In the beginning of August he gained some successes over the advanced fœderalist troops. On the 24th he took the town of Aix, and the Marseilloi sub-

169 The Marseillois obliged to submit.

French Revolution 1793.

170 Toulon surrendered to Lord Hood,

submitted. But the leading people of the important town and harbour of Toulon entered into a negociation, and submitted to the British admiral Lord Hood, under condition that he should preserve as a deposit the town and shipping for Louis XVII. and under the stipulation that he should assist in restoring the constitution of 1789. The siege of Toulon was commenced by General Cartaux in the beginning of September. It continued without much vigour during that and the whole of the succeeding month. Neapolitan, Spanish, and English troops, were brought by sea to assist in its defence. In the beginning of November, General Cartaux was removed to the command of the army in Italy, and General Dugommier succeeded him. General O' Hara arrived with reinforcements from Gibraltar, and took upon him the command of the town, under a commission from his Britannic majesty On the 30th of November, the garrison made a powerful sally to destroy some batteries that were erecting upon heights which commanded the city. The French were surprised, and the allies succeeded completely in their object; but, elated by the facility of their conquest, the allied troops rushed forward in pursuit of the flying enemy, contrary to their orders, and were unexpectedly met by a strong French force that was drawn out to protect the fugitives. General O'Hara now came from the city to endeavour to bring off his troops with regularity. He was wounded in the arm and taken prisoner. The total loss of the allies in this affair was estimated at nearly one thousand men. The French had now mustered in full force around Toulon, and prepared for the attack. It was begun on the 19th of December in the morning, and was chiefly directed against Fort Mulgrave, defended by the British. This fort was protected by an entrenched camp, 13 pieces of cannon, 36 and 24 pounders, &c. 5 mortars, and 3000 troops. Such was the ardour of assault, that it was carried in an hour, and the whole garrison was destroyed or taken. The allies now found it impossible to defend the place; and in the course of the day embarked their troops, after having set on fire the arsenal and ships. A scene of confusion here ensued, such as has not been known in the history of modern wars. Crowds of people of every rank, age, and sex, hurried on board the ships, to avoid the vengeance of their enraged countrymen. Some of the inhabitants began to fire upon their late allies; others in despair were seen plunging into the sea, making a vain effort to reach the ships; or putting an end at once to their own existence upon the shore. Thirty-one ships of the line were found by the British at Toulon; thirteen were left behind; ten were burnt; four had been previously sent to the French ports of Brest and Rochefort, with 5000 republicans who could not be trusted; and Great Britain finally obtained by this expedition three ships of the line and five frigates.

171 Who is at length obliged to evacuate it.

On the side of Spain the war produced nothing of importance; and in the mountainous country of Piedmont it went on slowly. Nice and Chamberry were still retained by the French; but more terrible scenes were acting in other quarters. In La Vendée a most bloody war was persisted in by the royalists. In that quarter of the country the language of the rest of France is little understood. The people were superstitious, and had acquired little idea of the new opinions that had lately been propagated in the rest of the empire. They were chiefly headed by priests, and regarded their cause as a religious one. Their mode of warfare usually was, to go on in their ordinary occupations as peaceable citizens, and suddenly to assemble in immense bands, insomuch that at one time they were said to amount to 150,000 men. They besieged Nantz and the city of Orleans, and even Paris itself was not thought altogether safe from their enterprises. The war was inconceivably bloody. Neither party gave quarter; and La Vendée proved a dreadful drain to the population of France. On the 28th of June, the conventional general Biron drove the royalists from Lucon; and Nantz was relieved by general Beysser. After some success, general Westerman was surprised by them, and compelled to retreat to Parthenay. In the beginning of August the royalists were defeated by general Rossignol; but on the 10th of that month, under Charette their commander in chief, they again attacked Nantz, but suffered a repulse. It would be tedious to give a minute detail of this obscure but cruel war. The royalists were often defeated and seemingly dispersed, but as often arose in crowds around the astonished republicans. At last, however, about the middle of October, they were completely defeated, driven from La Vendée, and forced to divide into separate bodies. One of these threw itself into the island of Noirmoutier, where they were subdued; another took the road of Maine and Brittany, where they struggled for some time against their enemies, and were at last cut to pieces or dispersed.

172 Proceedings of the royalists in La Vendée

The royalists had long expected assistance from England; and an armament under the earl of Moira was actually fitted out for that service, but it did not arrive till too late, and returned home without attempting a landing. —The Mountain party always disgraced their successes by dreadful cruelties. Humanity is shocked, and history would almost cease to obtain credit, were we to state in detail the unrelenting cruelties which were exercised against the unfortunate royalists, chiefly by Carrier, a deputy from the convention, sent into this quarter with unlimited powers. Multitudes of prisoners were crowded on board vessels in the Loire, after which the vessels were sunk. No age nor sex was spared; and these executions were performed with every circumstance of wanton barbarity and insult.

173 Horrid cruelties the Mountain party.

On the side of the Rhine a great variety of events occurred during the months of August and September. Several engagements at first took place, in which the French were, upon the whole, successful. In September, however, Landau was invested by the combined powers; and it was resolved to make every possible effort to drive the French from the strong lines of Weissembourg, on the river Lauter. On the 13th of October, the Austrian general Wurmser made a grand attack upon these lines. The French say that their generals betrayed them, and suffered the lines to be taken almost without resistance. The general of the allies confessed that the lines might have held out for several days. The French retreated to Hagenau, from which they were driven on the 18th; and suffered two other defeats on the 25th and 27th. Some of the principal citizens of Strasbourg now sent a private deputation to general Wurmser, offering to surrender the town, to be preserved as a deposit to be restored to Louis

174 Progress of the allies on the Rhine.

ench lution, 793.

Louis XVII. General Wurmser refused to accept of it upon these terms, insisting upon an absolute surrender to his Imperial Majesty. In consequence of the delay occasioned by disagreement, the negociation was discovered, and the citizens of Strasbourg engaged in the plot were seized by St Just and Lebas, commissioners from the convention, and brought to the scaffold. Prodigious efforts were now made by the French to recover their ground in this quarter. General Irembert was shot at the head of the army on the 9th of November, upon a charge, probably ill-founded, of treachery in the affair of the lines of Weissembourg, On the 14th, however, Fort Louis was taken by the allies, not without suspicion of treachery in the governor. But here the success of general Wurmser might be said to terminate. On the 21st the republican army drove back the Austrians, and penetrated almost to Hagenau. An army from the Moselle now advanced to co-operate with the army of the Rhine. On the 17th the Prussians were defeated near Sarbruck. Next day their camp at Bliescastel was stormed, and the French advanced to Deux Ponts. On the 29th and 30th the French were repulsed with great loss in two violent attacks made on the duke of Brunswick near Lautern. But it now appeared that the French had come into the field with a determination to conquer whatever it might cost. Every day was a day of battle, and torrents of blood were shed on both sides. The allies had the advantage of possessing the ground, which, in that quarter, at such a late season of the year, is very strong on account of its inequalities and morasses. In military skill, the French officers and those of the allies were perhaps nearly equal; but the French army was by far the most numerous; and although not a match in point of discipline, yet it derived no small superiority from the enthusiasm with which the troops were animated. On the 8th of December, under the command of general Pichegru, the French carried the redoubts which covered Hagenau by means of the bayonet.

175 French 29th 30th in quar-

This modern instrument of destruction, against which no defensive weapon is employed, is always most successful in the hands of the most intrepid; and it was now a dreadful engine in the hands of French enthusiasm.—The finest troops that ever Europe produced were unable to withstand the fury of the republicans, which seemed only to increase in proportion to the multitude of companions that they lost. On the 22d the allies were driven with immense slaughter from Hagenau, notwithstanding the immense works they had thrown up for their defence. The entrenchments on the heights of Reishoffen, Jaudershoffen, &c. were considered as more impregnable than those of Jemappe. They were stormed by the army of the Moselle and the Rhine, under generals Hoche and Pichegru. On the 23d and 24th, the allies were pursued to the heights of Wrotte. On the 26th, the entrenchments there were forced by the bayonet, after a desperate conflict. On the 27th, the republican army arrived at Weissembourg in triumph. General Wurmser retreated across the Rhine, and the duke of Brunswick hastily fell back to cover Mentz. The blockade of Landau, which had lasted four months, was raised. Fort Louis was evacuated by the allies, and Kaiserslatern, Germersheim, and Spires, submitted to the French.—During this last month of the year 1793, the loss of men on both sides in this quarter was immense, and unexampled in the history of modern war. It is even said that it might amount to more than 70,000 or 80,000 men.

French Revolution, 1793.

Thus far we have attended to the military affairs of the republic for some time past. Very violent efforts were in the mean time made at Paris by the new administration, established under the auspices of the Jacobin club, and of the party called the *Mountain*. The new republican constitution had been presented to the people in the primary assemblies, and accepted. The business, therefore, for which the convention was called together, that of forming a constitution for France, was at an end; and it was proposed that they should dissolve themselves, and order a new legislative body to assemble, according to the rules prescribed by that constitution. This was, no doubt, the regular mode of procedure; but the ruling party considered it as hazardous to convene a new assembly, possessing only limited powers, in the present distracted state of the country. It was indeed obvious, that France at this time stood in need of a dictatorship, or of a government possessed of more absolute authority than can be enjoyed by one that acts, or even pretends to act, upon the moderate principles of freedom. It was therefore determined that the convention should remain undissolved till the end of the war; and that a *revolutionary* government, to be conducted by its members, should be established, with uncontrouled powers. Committees of its own body were selected for the purpose of conducting every department of business. The chief of these committees was called the *committee of public safety*. It superintended all the rest, and gave to the administration of France all the secrecy and dispatch which have been accounted peculiar to a military government, together with a combination of skill and energy hitherto unknown among mankind. A correspondence was kept up with all the Jacobin clubs throughout the kingdom. Commissioners from the convention were sent into all quarters, with unlimited authority over every order of persons. Thus a government possessed of infinite vigilance, and more absolute and tyrannical than that of any single despot, was established; and the whole transactions and resources of the state were known to the rulers. On the 23d of August, Barrere, in name of the committee of public safety, procured the celebrated decree to be passed for placing the whole French nation in a *state of requisition* for the public service. "From this moment (says the decree) till that when all enemies shall have been driven from the territory of the republic, all Frenchmen shall be in permanent readiness for the service of the army. The young men shall march to the combat; the married men shall forge arms, and transport the provisions; the women shall make tents and clothes, and attend in the hospitals; the children shall make lint of old linen; the old men shall cause themselves to be carried to the public squares, to excite the courage of the warriors, to preach hatred against the enemies of the republic; the cellars shall be washed to procure saltpetre; the saddle-horses shall be given up to complete the cavalry; the unmarried citizens, from the age of 18 to 25, shall march first, and none shall send a substitute; every battalion shall have a banner, with this inscription, *The French nation rises against tyrants*." The decree also regulates the mode of organizing this mass. A decree more tyrannical

176 Violent efforts of the Mountain party.

177 France decreed to be in a state of requisition.

French Revolution, 1793.

rannical than this was never made by an eastern despot; and when it was first published, foreigners were at a loss whether to regard it as a sublime effort of a powerful government, or as a wild project which could produce nothing but confusion. The effects of it, however, have been truly terrible. We have already mentioned some of them in the bloody contest which occurred upon the Rhine, and Europe was soon destined to bear witness to still more extraordinary events.

178 General Custine tried and executed.

In the end of July, general Custine was brought to trial, and executed, in consequence of a variety of accusations of infidelity to his trust and disrespect to the convention.

179 Murder of the queen.

The queen was next brought to trial before the revolutionary tribunal, on the 15th of October. The charges against her were very various; but the chief tendency of them was to prove that she had always been hostile to the revolution, and had excited all the efforts that had been made by the court against it. On the 16th of October, this beautiful woman, whom fortune once placed so high, ended her days on a scaffold, after a mock trial, in which no regard was paid either to justice or decency.

180 Execution of the heads of the Girondist party,

She behaved with much dignity and composure, and appeared deeply impressed with a sense of religion. The members of the convention who had been at the head of the Girondist party, and had either been detained in prison since the 31st of May, or seized in the departments to which they had retired, were afterwards brought to trial. On the 30th of October, 21 of them were executed, viz. Brissot, Vergniaud, Gensonné, Duprat, Lehardi, Ducos, Fonfrede, Boileau, Gardien, Duchatel, Sillery, Fauchet, Dufriche, Duperret, La Source, Carra, Beauvais, Mainville, Antiboul, Vigée, and Lacaze. Seventy-one were still detained in confinement.

181 And of the Duke of Orleans.

The duke of Orleans was afterwards condemned, on a charge of having aspired to the sovereignty from the beginning of the revolution. His execution gave satisfaction to all parties. His vote for the punishment of death upon the trial of the late king had done him little honour even in the opinion of the Mountain, and had rendered him odious to all the rest of mankind.

182 Executions become prodigiously common.

The executions of persons of all ranks, particularly of priests and nobles, became now so common, that it would be in vain to attempt to give any detail of them. Every person brought before the revolutionary tribunal was condemned as a matter of course. The Jacobins seemed insatiable in their thirst after blood, and the people at large appeared to regard their conduct with unaccountable indifference.

183 A new table of weights and measures established.

When the human mind is once roused, its activity extends to every object. At this time a new table of weights and measures was established by the convention, in which the decimal arithmetic alone is employed. The court of Spain had the liberality, notwithstanding the war, to suffer M. Mechain to proceed in his operations for measuring a degree of the meridian in that country. He carried on his series of triangles from Barcelona to Perpignan; and from this place the mensuration was continued to Paris. M. de Lambre, and his pupil M. le Francois, also measured a degree of latitude in the vicinity of the metropolis. In all, 12 degrees of the meridian were measured; of which the mean is 57027 toises, and by this the universal standard of measure is calculated. M. M. de Borde and Cassini determined the length of a pendulum that swings seconds, *in vacuo* and in a mean temperature at Paris, to be 3 feet and 8,06 lines. M. M. Lavoisier and Hauy found that a cubic foot of distilled water at the freezing point weighs *in vacuo* 70 pounds and 60 gros French weight. We shall insert a table of the measures and weights now established.

Long Measure.

Metres.		*French Toises.*
10,000,000 =	a quadrant of the meridian which is the principle on which the new measure is founded -	5132430
100,000 =	an hundredth part of a quadrant, or decimal degree of the meridian -	51324
1000 =	a *milliare*, or mile -	513
100 =	a stadium } Agrarian	51.3243
10 =	a perch } measure,	5.13243

		Feet.	*Inch.*	*Lines.*
1 =	a *metre*, or rectilineal unit - -	3	0	11.44
$\frac{1}{10}$ or 0.1 =	a *decimetre*, or palm	0	3	8.344
$\frac{1}{100}$ or 0.01 =	a *centremetre*, or digit -	0	0	4.434
$\frac{1}{1000}$ or 0.001 =	a *millemetre* -	0	0	.443

Superficial Measure.

Sq. Metres.		*Sq. Feet.*
10,000 =	an *are*, or superficial unit, being a square the side of which is 100 metres in length - -	94831
1000 =	a *deciare*, or tenth of an *are*; a superficies an hundred metres long, and ten broad -	9483.1
100 =	a centiare - -	948.31

Measures of Capacity.

Cub. decimetres		*Paris Pints.*	*Paris Bush.*
1000 =	the cubic *metre*, or cade or tun - -	$1051\frac{1}{2}$	78.9
100 =	*dedicade*, or *setier*	$105\frac{1}{2}$	7.89
10 =	*centicade*, or bushel	$10\frac{1}{2}$	.789
1 =	cubic *decimetre*, or pint	$1\frac{1}{10}$	.0789

Weights.

Cub. decimetres of water.		*French Pounds.*
1000 =	the weight of a cubic *metre*, or cade of water, is called a *bar* or *millier* - - -	2044.4
100 =	$\frac{1}{10}$ of a *bar*, or *decibar*, or quintal	204.44
10 =	$\frac{1}{100}$ of a *bar*, or centibar, or *decal*	20.444

		lb.	*oz.*	*gros.*	*grains.*
1 =	the weight of a cubic decimetre of water is called a *grave*, or pound -	2	8	5	49
.1 =	$\frac{1}{10}$ of a *grave*, or *decigrave*, or ounce	0	3	2	12.1
.01 =	$\frac{1}{100}$ of a *grave*, or centigrave, or dram	0	0	2	44.41
.001 =	the weight of a cubic *centimetre* of water, is named a *gravet*, or maille -	0	0	0	18.841
.0001 =	*decigravet*, or grain	0	0	0	1.8841
.00001 =	*centigravet* -	0	0	0	0.18841

ch A piece of silver coin weighing a *centigrave*, and a ion. *franc* of silver, according to the former standard will be worth 40 sols 10½ deniers. The *milliare*, or thousand *metres*, is substituted for the mile; and the *are*, for the arpent in land-measure. The latter two are to each other as 49 to 25. The astronomical circles with which M. M. de Borda and Cassini made the observations, are divided according to this plan. The quadrant contains 100 degrees, and each degree 100 minutes. Hence the minute of a great circle on our globe is equal to a *milliare*, or new French mile. If, for the reduction of this measure, we estimate the Paris toise, according to the comparison made with the standard kept in the Royal Society of London, at 6.3925 English feet, the *milliare* or minute will be equal to 1093.633 yards, and the *metre* 3.280899 feet.

ka- At the same period a new kalendar was formed.—By it the year is made to begin with the autumnal equinox, and is divided into 12 months. These are called Vindemaire, Brumaire, Frimaire, Nivos, Ventos, Pluvios, Germinal, Frorial, Praireal, Messidor, Fervidor, and Fructidor. The months consist of 30 days each, and are divided into three decades. The days of each decade are known by the names of Primidi, Duodi, Tridi, &c. to Decadi; and the day of rest is appointed for every tenth day, instead of the seventh. The day (which begins at midnight) is distributed into ten parts, and these are decimally divided and subdivided. Five supernumerary days are added every year after the 30th of Fructidor. To these is given the absurd appellation of *Sans Culottides*, a word borrowed from a term of reproach *(sans culotte)*, which had often been bestowed on the republican party from the meanness of their rank and fortune; but which that party now attempted to render honourable and popular. The childish folly of this innovation has struck every person with surprize, as it can serve no good purpose whatever. It is a wonderful instance of the waywardness of the human mind, which can occupy itself one moment with deeds of savage barbarity, and the next with a matter so unimportant as the artificial division of time.

f The religion of France had been gradually losing its influence; and on the 7th of November, Gobet bishop of Paris, along with a great multitude of other ecclesiastics, came into the hall of the convention, and solemnly resigned their functions and renounced the Christian religion. All the clergymen, whether Protestant or Catholic, that were members of the convention, followed this example, excepting only Gregoire, whom we formerly mentioned as having been one of the first priests that joined the *Tiers Etat* after the meeting of the States General. He had the courage to profess himself a Christian, although he said that the emoluments of his bishopric were at the service of the republic. With the acclamations of the convention, it was decreed that the only French deities hereafter should be Liberty, Equality, Reason, &c. and they would seem to have consecrated these as a kind of new objects of worship.—What political purpose the leaders in the convention intended to serve by this proceeding does not clearly appear; unless, perhaps, their object was to render the French manners and modes of thinking so completely new, that it should never be in their power to return to the state from which they had just emerged, or to unite in intercourse with the other nations of Europe. The populace, however, could not at once relinquish entirely the religion of their fathers. The Commune of Paris ordered the churches to be shut up, but the Convention found it necessary to annul this order; and Robespierre gained no small degree of popularity by supporting the liberty of religious worship on this occasion. Hebert and Fabre d'Eglantine, who led the opposite party, hastened their own fall by this ill-judged contempt of popular opinion.

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185 Quarrels between the Mountain and Jacobins.

For, now that the republic saw itself successful in all quarters, when the Mountain party and the Jacobins had no rival at home, and accounted themselves in no immediate danger from abroad, they began to split into factions, and the fiercest jealousies arose. The Jacobin Club was the usual place in which their contests were carried on; and at this time Robespierre acted the part of a mediator between all parties. He attempted with great art to turn their attention from private animosities to public affairs. He spread a report that an invasion of Great Britain was speedily to take place. He therefore proposed that the Jacobin Club should set themselves to work to discover the vulnerable parts of the British constitution and government. They did so: They made speeches, and wrote essays without number. And in this way was the most fierce and turbulent band of men that ever perhaps existed in any country occupied and amused for a very considerable time. What is no less singular, a great number of British subjects favoured the plans of these reforming Atheists, and, under the specious appellation of the *Friends of the People*, acted in concert with the French Jacobins.

187 A provisional acknowledgement of the republic by the allies rejected by the convention.

The winter passed away in tolerable quietness, and no military enterprise was undertaken either by the allies or by the French. On the 1st of February, Barrere asserted in the Convention that the confederate powers were willing *provisionally* to acknowledge the French republic, to consent to a cessation of hostilities for two years, at the end of which a lasting peace should be ratified by the French people. But this proposal the Convention declared itself determined to reject, as affording to the other nations of Europe the means of undermining their new government. In the mean time, the revolutionary government was gradually becoming more vigorous. Thirty committees of the Convention managed the whole business of the state, without sharing much of the direct executive government, which rested in the committee of public safety. These different committees were engaged in the utmost variety of objects. The ruling party had no competitors for power. Without confusion or opposition, therefore, the most extensive plans were rapidly carried into effect. The Convention was little more than a court in which every project was solemnly registered. In the same session 30 decrees would sometimes be passed upon objects the most widely different. The finances were under one committee, at the head of which was Cambon.—This committee found resources for the most lavish expenditure. The assignats were received as money throughout the state; and thus a paper mill was said to have become more valuable than a mine of gold. Their credit was supported by an arbitrary law regulating the *maximum* or highest price of all provisions, and by the immense mass of wealth which had come into the hands of the Convention by seizing the church lands, and by confiscating the property of royalists, emigrants, and persons

188 Vigorous state of the revolutionary government.

189 Management of the finances and other resources of the nation.

French Revolution, 1794.

persons condemned by the revolutionary tribunal. So unequally had property been divided under the ancient government, that by means of these confiscations about seven-tenths of the national territory was supposed to be in the hands of the public. To this was added the plunder of the churches, consisting of gold and silver saints, and utensils employed in divine worship, along with other articles of less value; among which may be mentioned the innumerable church bells, which were regarded as sufficient for the manufacture of 15,000 pieces of cannon. These resources formed a mass of property such as never was possessed by any government.

Other committees were engaged in very different objects. Highways were constructed, and canals planned and cut throughout the country. Immense manufactories of arms were everywhere established. At Paris alone 1100 muskets were daily fabricated, and 100 pieces of cannon cast every month. Public schools were assiduously instituted, and the French language taught in its purity from the Pyrenees to the Rhine. The French Convention possessed immense resources, and they did not hesitate to lavish them upon their schemes. Every science and every art was called upon for aid, and the most accomplished men in every profession were employed in giving splendour to their country. The chemists, in particular, gave essential aid by the facility with which they supplied materials for the manufacture of gun-powder; and in return for their services, Lavoisier, the greatest of them, suffered death by a most iniquitous sentence. Not fewer than 200 new dramatic performances were produced in less than two years; the object of which was to attach the people to the present order of things. The vigour with which the committees of subsistence exerted themselves is particularly to be remarked. As all Europe was at war with France, and as England, Holland, and Spain, the three maritime powers, were engaged in the contest, it had been thought not impossible to reduce France to great distress by famine, especially as it was imagined that the country had not resources to supply its immense population. But the present leaders of that country acted with the policy of a besieged garrison. They seized upon the whole provisions in the country, and carried them to public granaries. They registered the cattle, and made their owners responsible for them.—They provided the armies abundantly, and, as the people were accurately numbered, they dealt out in every district, on stated occasions, what was absolutely necessary for subsistence, and no more. To all this the people submitted; and indeed, throughout the whole of the mixed scenes of this revolution, the calm judgment of the historian is not a little perplexed. We cannot avoid admiring the patience with which the people at large endured every hardship that was represented as necessary to the common cause, and the enthusiastic energy with which they lavished their blood in defence of the independence of their country. At the same time, we must regard with indignation and disgust the worthless intrigues by means of which the sanguinary factions in the Convention and the capital alternately massacred each other.

190 Dissensions of the Jacobins increase.

During the winter the dissensions of the Jacobins still increased. They were divided into two clubs, of which the new one assembled at a hall which once belonged to the Cordeliers. The leaders of it were Hebert, Ronsin, Vincent, and others; but the old society retained its ascendency, and Robespierre was now decidedly its leader. This extraordinary man had gradually accumulated in his own person the confidence of the people and the direction of the government. As the committees were above the Convention, which was become little more than a silent court of record, so the committee of public safety was above the other committees. Robespierre was the leader of this ruling committee. Barrere, St Just, Couthon, and others of its members, only acted a secondary part. They laboured in the business of the state, but the radical power was with Robespierre. He surrounded the members of the Convention with spies. He was jealous and implacable, and set no bounds to the shedding of blood. On the 25th of March he brought to trial the following active Jacobins, who were condemned and executed on the following day: Hebert, Ronsin, Momoro, Vincent, Du Croquet, Kocq, Col. Laumur, M. M. Bourgeois, Mazuel, La Boureau, Ancard, Le Clerc, Proly, Desfieux, Anacharsis Cloots, Pereira, Florent Armand, Descombes, and Debuison. Not satisfied with this, on the 2d of April he brought to trial nine of those who had once been his most vigorous associates, Danton, Fabre d'Eglantine, Bazire, Chabot, Philippeaux, Camille Desmoulins, Lacroix, Delaunay d'Angers, Herault de Sechelles, who, along with Westerman, were executed on the evening of the 5th.

Still, however, the preparations for the ensuing campaign were proceeding with unabated vigour. The committee for military affairs, at the head of which were Carnot, La Fitte, d'Aussi, and others, was busy in arranging along the frontiers the immense force which the requisition had called forth. Plans of attack and defence were made out by this committee; and when approved by the committee of public safety they were sent to the generals to be executed. On the other side, the allies were making powerful preparations for another attempt to subjugate France. The Emperor himself took the field at the head of the armies in the Netherlands. The plan of the campaign is said to have been formed by the Austrian Colonel Mack. West Flanders was to be protected by a strong body of men; the main army was to penetrate to Landrecies, and getting within the line of French frontier towns, it was to cut them off from the interior by covering the country from Maubeuge to the sea. The plan was *bold*. It belongs to military men to judge whether this was not its only merit. When attempting to put it in execution, the allies must have been ill informed of the immense force which the French were collecting against them. Even the town of Lisle alone, which is capable of containing a numerous army within its walls, and which was to be left in their rear, should have seemed an insurmountable objection to the plan.

On the 16th of April the Austrian, British, and Dutch armies assembled on the heights above Cateau, and were reviewed by the emperor. On the following day they advanced in eight columns against the French, drove in their whole posts, and penetrated beyond Landrecies; which place the French attempted to relieve, but without success. The allied army now amounted to 187,000 men, who were disposed in the following manner; 15,000 Dutch and 15,000 Austrians, under the prince of Orange and general Latour, formed the siege

ſiege of Landrecies; 15,000 Britiſh and 15,000 Auſtrians, commanded by the duke of York and general Otto, encamped towards Cambray. The emperor and the prince of Saxe-Cobourg, at the head of 60,000 Auſtrians, were advanced as far as Guiſe; 12,000 Heſſians and Auſtrians under general Worms were ſtationed near Douay and Bouchain; Count Kaunitz with 15,000 Auſtrians defended the Sambre and the quarter near Maubeuge; and, laſtly, general Clairfait, with 40,000 Auſtrians and Hanoverians, protected Flanders from Tournay to the ſea; 60,000 Pruſſians, for whom a ſubſidy had been paid by Great Britain, were expected in addition to theſe, but they never arrived.

The French now commenced their active operations. On the morning of the 26th of April they attacked the duke of York near Cateau in great force. After a ſevere conflict they were repulſed, and their general Chapuy was taken priſoner. At the ſame time they attacked the troops under his Imperial majeſty, but were there alſo repulſed in a ſimilar manner; loſing in all 57 pieces of cannon. On the ſame day, however, general Pichegru advanced from Liſle, attacked and defeated general Clairfait, took 32 pieces of cannon; and, in the courſe of a few days, made himſelf maſter of Warwick, Menin, and Courtray. On the 29th of April, the garriſon of Landrecies ſurrendered to the allies. When this event was known in the convention, it excited a conſiderable degree of alarm. It was, however, the laſt effectual piece of ſucceſs enjoyed by the allies during this diſaſtrous campaign. General Clairfait was again completely defeated by Pichegru in a general engagement; and it was found neceſſary to ſend the duke of York to his aſſiſtance. This movement was no doubt unavoidable; but the effect of it was, that it ſplit down the allied army into a variety of portions, capable of carrying on a deſultory warfare, but unfit for the vigorous objects of conqueſt. On the 10th the duke of York was attacked near Tournay by a body of the enemy, whom he repulſed; but he was unable to join Clairfait, upon whoſe deſtruction the French were chiefly bent: for at the ſame time that the duke of York was occupied by the attack upon himſelf, Pichegru fell upon Clairfait with ſuch irreſiſtible impetuoſity, that he was compelled to retreat in confuſion, and a part of his army appears to have fled to the neighbourhood of Bruges. While Pichegru was thus advancing ſucceſsfully in Weſt Flanders, general Jourdan advanced in Eaſt Flanders from Maubeuge, croſſed the Sambre, and forced general Kaunitz to retreat. On the 18th, however, general Kaunitz ſucceeded in repulſing the enemy in his turn, and they re-croſſed the Sambre with conſiderable loſs.

The allies now found that no progreſs could be made in France while general Pichegru was advancing ſucceſsfully and occupying Weſt Flanders in their rear. The emperor, therefore, withdrew the greater part of his army to the neighbourhood of Tournay, and reſolved to make a grand effort to cut off the communication between Courtray and Liſle, thus to prevent completely the retreat of Pichegru. On the night of the 16th, the army moved forwards in five columns for this purpoſe. Clairfait was at the ſame time directed to croſs the Lys, to effect a general junction, if poſſible, and complete the plan. The attempt during that evening ſeemed to promiſe ſucceſs; but, in the courſe of next day, the diviſion under the duke of York was overpowered by numbers and defeated. The progreſs of the reſt of the columns was ſtopped, and Clairfait completely defeated. In the confuſion of the day, when attempting to rally the different parts of the diviſion which he commanded, the duke of York was ſeparated from his own troops by a party of the enemy's cavalry, and only eſcaped being made priſoner by the ſwiftneſs of his horſe. The plan of the allies being thus fruſtrated, their army withdrew to the neighbourhood of Tournay.

Pichegru ſpeedily attempted to retaliate againſt the allies. On the 22d of May he brought down at day break his whole force againſt them. The attack was commenced by a heavy fire of artillery, and all the advanced poſts were forced. The engagement ſoon became general; the attacks were repeatedly renewed on both ſides; the whole day was ſpent in a ſucceſſion of obſtinate battles. All that military ſkill could do was performed on both ſides. The French and the allied ſoldiers fought with equal courage and equal diſcipline. At nine o'clock in the evening the French at laſt reluctantly withdrew from the attack. The day on which a vanquiſhed enemy flies from the field is not always that on which the victory is won. In this engagement the French were unſucceſsful in their immediate object; but the weight of their fire, their ſteady diſcipline, and their violent obſtinacy of attack, raiſed their military character high in the eſtimation of the officers and ſoldiers of the allied army. It was ſoon perceived, that in addition to theſe they poſſeſſed other advantages. Their numbers were immenſe; they implicitly obeyed their generals; who, being men newly raiſed from the rank of ſubalterns, as implicitly ſubmitted to the directions of the committe of public ſafety. A combination of efforts was thus produced whoſe operation was not retarded by divided counſels. On the other ſide, the numbers of the allies were daily declining; their leaders were independent princes or powerful men, whoſe ſentiments and intereſts were often very hoſtile to each other, and their exertions were conſequently diſunited.

On the 24th the French again croſſed the Sambre, but were driven back with much loſs. On the 27th an attempt was made to beſiege Charleroi, but the prince of Orange on the 3d of June compelled them to raiſe the ſiege. On the 12th a ſimilar attempt was made, and they were again repulſed. In Weſt Flanders, however, Pichegru was ſufficiently ſtrong to commence the ſiege of Ypres. He was ſoon attacked by general Clairfait for the purpoſe of relieving it, but without ſucceſs.—Ypres was garriſoned by 7000 men; reinforcements were therefore daily ſent from the grand army to Clairfait for the purpoſe of relieving it. It is unneceſſary to mention the bloody conteſts in which that unfortunate general was daily engaged with the French; it is ſufficient to ſay, that they were uniformly unſucceſsful, and were the means of waſting, in a great degree, the armies of the allies. Ypres held out till the 17th of June, when it capitulated: and ſuch was the diſcipline of the French army at this time, that no notice could be obtained, for ſeveral days, of that event. In conſequence of it and of other events, the duke of York found it neceſſary to retreat to Oudenarde; for Jourdan, after ſtorming the Auſtrian camp

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195 He lays ſiege to Ypres, and

196 Takes it.

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of Betignies, now advanced with such strength upon Charleroi in the east that its immediate fall was feared. As this would have enabled the two French armies to encircle the whole of Flanders, the prince of Cobourg advanced to its relief. Charleroi surrendered at discretion on the 25th. This circumstance was not known by the prince of Cobourg when he advanced on the 26th to attack in their entrenchments the army that covered the siege near Fleurus: but the covering army being by this time reinforced by the accession of the besieging army, the allies were repulsed. Jourdan then drew his men out of their entrenchments; and, in his turn, attacked the Austrians. He was three times repulsed, but was at last successful: the loss of the vanquished army is said to have been prodigious: but no regular accounts of it have been published. The French unquestionably exaggerated their own success, when they said that it amounted to 15,000 men.

197 Charleroi surrendered, and the Austrians defeated.

198 Further success of the French in Flanders.

The allies now retreated to their quarters. Nieuport, Ostend, and Bruges, were taken; and Tournay, Mons, Oudenarde, and Brussels, opened their gates. At this last place the French armies of East and West Flanders united. Landrecies, Valenciennes, Condé, and Quesnoy, were hastily left with garrisons in them. The allied troops, evacuating Namur, formed a line from Antwerp to Liege to protect the country behind. The French advanced in full force, and attacked general Clairfait, cut to pieces half the troops that now remained under him, and broke the line. The allies retreated before them. The duke of York was joined by some troops under the earl of Moira that with much difficulty had made their way to him from Ostend; and with these and the Dutch troops he retired to the neighbourhood of Bergen-op-zoom and Breda for the protection of Holland. The prince of Cobourg evacuated Liege, crossed the Mæse, and placed a garrison in Maestricht. He soon, however, sent back a part of his troops to the neighbourhood of Tongres; for here, to the astonishment of all Europe, the French armies made a voluntary pause in their career of victory, and ceased to pursue their retiring foes. Sluys in Dutch Flanders was the only foreign post that they continued to attack, and it surrendered after a siege of 21 days.

199 And on the Rhine.

On the Rhine the war was equally successful on the part of the French. On the 12th, 13th, and 14th of July, repeated engagements were fought; in which the French enjoyed their usual success. They had numerous armies in every quarter. Their mode of fighting was to make full preparation for accomplishing their object, and to fight in great bodies day after day till it was obtained. The Palatinate was thus over-run, and Treves taken, by general Michaud. Flanders and the Palatinate have always been accounted the granaries of Germany; and both of them, at the commencement of the harvest, now fell into the hands of the French.

200 Corsica subdued by Great Britain.

During the course of this summer Corsica was subdued by Great Britain; and the whole of the French West India Islands, excepting a part of Guadaulope, yielded to the British troops under the command of Sir Charles Grey and Sir John Jarvis. On the first of June the British fleet, under the command of earl Howe, gained a most splendid victory over the French fleet to the westward of Ushant. The French committee of safety were known to have purchased in America immense quantities of grain and other stores. These were embarked on board 160 sail of merchantmen, convoyed by six sail of the line. Lord Howe failed to intercept this valuable convoy. The French fleet failed at the same time to protect it. On the morning of the 28th of May the fleets came in sight of each other. The British admiral had previously dispatched six ships of the line under admiral Montague to intercept the French convoy, while he should engage and detain the grand fleet. The French dispatched eight sail to defeat this attempt. In the course of the 29th Lord Howe got to windward of the French fleet. His force was 25, and theirs was 26, sail of the line. The following day he bore down upon them, and broke their line. The engagement was one of the severest ever fought. The French admiral, in less than an hour after the close action commenced in the centre, crowded off with 12 of his ships. The British fleet was so much disabled, or separated, that several of the French dismantled ships got away under sails raised on the stump of their fore-masts. Seven sail of the line, however, remained in possession of the British, and two were unquestionably sunk. In the mean time, admiral Montague fell in with the French convoy, but it was now guarded by 14 sail of the line. As he could not encounter such a force, he returned home, and it was safely conveyed into port. Thus, by one of those contradictions which so often occur in human affairs, the British fleet was victorious, and the French were left in some measure masters of the sea. As this engagement however testified that the British seamen had not lost their ancient superiority on their own element, the nation regarded the present victory as a pledge of its independence, and very general rejoicings took place in consequence of it.

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201 Splendid victory of the British fleet under lord Howe.

In the mean time, the revolutionary system of government in the hands of committees of the convention at Paris, and of committees of the popular societies throughout the country, was arrived at its highest perfection, and proceeded without opposition in its severe and sanguinary measures.

202 The horrid executions in Paris continued.

On the 10th of May Madame Elizabeth, sister of the late king, was sacrificed by it in consequence of a decree of the revolutionary tribunal. Multitudes of others of every rank and sex were daily sacrificed in a similar manner; the rich in particular were the great objects of persecution, because the confiscation of their property added to the strength of the ruling powers. But neither were the poor safe from the bloody vigilance of this new and singular government. By the different executions Robespierre had contrived to destroy every avowed rival. All the constituted authorities consisted wholly of persons nominated with his approbation; and as the committees which conducted the business of the state were at his disposal, his will was irresistible throughout the republic. He met with no opposition in the convention; for that body was no longer the turbulent popular assembly which it had once appeared; it was little more than a name employed to give some sort of respectability to such schemes as were proposed to it.

203 Immense power of Robespierre.

Amidst this accumulation, however, of seemingly irresistible authority, Robespierre was at the brink of ruin. The whole of the old Girondist party was indeed subdued and silent; but many members of the convention still remained attached to it. The party of the Mountain,

204 Vergingeorix ruin.

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Mountain, by means of whom Robespierre had risen to power, with little satisfaction now found themselves not only disregarded, but ready at every instant to fall a sacrifice to that system of terror which they had contributed to erect. Even the Jacobins themselves, though neither timid nor cautious in the shedding of blood, began to murmur when they saw that awful privilege confined exclusively within a few hands, or rather monopolized by an individual. In this state things remained for some time; and it appeared how possible it is for an individual to govern a great nation even while the whole of that nation is hostile to his power. The banishment or imprisonment of all foreigners, which had long been rigorously practised, prevented us from possessing much accurate information concerning the internal state of France at this period; but it is certain, that one circumstance in particular intervened to accelerate the fall of Robespierre. He had proposed a decree to be passed, authorising the committee of public safety to imprison at its pleasure, and bring to trial, any member of the convention. All the individuals of that body found themselves placed by this decree in the hands of a man whose severe and suspicious temper they well knew. Still, however, they were so much surrounded by spies, that it was difficult to form a party or plan of operations; even the majority of the committee of public safety were among the number of the discontented, but they dared not withstand their chief. At last, on the 25th of July, the convention began to exhibit signs of agitation. It was understood, that in the course of a few days Robespierre would sacrifice a number of the members to his suspicions. On the following day the sitting of the convention was still more tempestuous. In a long speech Robespierre defended his own conduct against those who had reproached him with aspiring to the dictatorship of France. He attacked the party whom he styled *Modérates*, as wishing to overturn the revolutionary government, and to restore the feeble system of the Brissotines. The result of a long debate was, that Robespierre was apparently victorious, and his speech was ordered to be printed. On the 27th the convention appeared ripe for a change: St Just, a member of the committee of public safety, in attempting to defend Robespierre, was repeatedly interrupted; and Billaud Varennes stood forward and enumerated the crimes, and proclaimed the tyranny, of Robespierre. The speech was received with bursts of applause. Robespierre in vain attempted to defend himself; he was silenced by shouts of execration from every part of the hall. Tallien seconded the former speaker in his accusation. The sitting was declared permanent, and a decree of arrest was passed against Robespierre and a younger brother of his, along with St Just, Couthon, and Lebas. These men left the convention, and found security in the hall of the commune of Paris; where the municipal officers agreed to protect and stand by them. The tocsin was sounded; the armed force was under their command; an insurrection was therefore attempted against the convention: but the sections of Paris refused their support. Very few of the troops could be collected, and these were not firm; the late tyranny had become odious. The hall of the commune was therefore speedily surrounded; and about three o'clock in the morning of the 28th Robespierre and his associates were made prisoners. They had been outlawed by the convention on account of their resistance. They were not therefore tried, unless for the purpose of identifying their persons; and, in the course of that day, they were executed: 60 of the municipal officers were also executed for joining in their rebellion; and in this way a storm passed over, which at one time threatened to involve the French capital in ruin, and filled all Europe with astonishment. Thus also terminated the career of the most extraordinary man that the French revolution had brought forward. His talents were undoubtedly considerable, and his ambition knew no bounds, bidding defiance to the ordinary feelings of humanity. Had Dumourier possessed his coolness and caution, or had he possessed the military talents of Dumourier, the convention would certainly have been overturned, and we should have seen a second Cromwell on the throne of his murdered sovereign.

205 Jacobins is fall.

206 The system of terror gives place to that of moderation.

After the fall of Robespierre, the convention exhibited no small change of appearance. Instead of that silence which formerly prevailed, all was bustle and noise; all accused each other. There was no longer any leader, and there was no formed party. The former system of terror was declared to be at an end, and a new system of *modération* succeeded. This was carried to as great a height as the system of terror had formerly been; and all means were taken to render popular the fall of their late tyrant. The committees were organised anew, and their members ordered to be frequently changed. The correspondence between the affiliated Jacobin clubs was prohibited, and at last the Jacobin club itself was abolished. This last event was accomplished with ease; and that society which had been the great engine of the revolution, was itself without resistance overturned. Seventy-one deputies of the Girondist party, who had been imprisoned since the 31st of May 1793, were set at liberty. The name of Lyons was restored to it. Some of the agents of Robespierre were punished, particularly the infamous Carrier, whose cruelties in La Vendée we formerly mentioned. Still, however, the convention appeared so little united and so little decided with regard to objects of the first importance, that in all probability they would not have conducted the important struggle against the nations of Europe with more success than the Girondist party had formerly done, if the revolutionary government and the late system of terror had not already accumulated in their hands such vast resources, and traced out such a plan of procedure, as rendered it an easy matter to preserve their numerous armies in the train of success to which they were now habituated.

207 The French towns strongly garrisoned by the allies surrender without resistance.

The allies in their retreat had left strong garrisons in the French towns which had surrendered to them. These were Condé, Valenciennes, Quesnoi, and Landrecies. They now surrendered to the republican armies with so little resistance, that the conduct of the emperor began to be considered as ambiguous, and he was suspected of having entered into some kind of compromise with the French. This idea proved erroneous; and as soon as the army which had besieged these towns was able to join the grand army under Pichegru and Jourdan, the operations of the campaign were resumed after a suspension of almost two months. The French army divided itself into two bodies. One of these under Jourdan advanced against General Clairfait, who had succeeded the prince of Cobourg in the command

French Revolution, 1794.

208 Further successes of the French.

in the neighbourhood of Maestricht. On the 15th of September the French attacked the whole Austrian posts in an extent of five leagues from Liege to Maestricht. On that and the following day the losses were nearly equal. On the 17th the French with 50 pieces of cannon attacked General Kray in his entrenched camp before Maestricht. M. de Kray was already retiring when General Clairfait arrived with a strong reinforcement, and after a severe combat the French were once more compelled to retire. On the 18th the French renewed the attack with tenfold fury upon every part of the Austrian line, and the whole was compelled to fly to the neighbourhood of Aix-la-Chapelle. General Clairfait now chose a strong position on the banks of the Roer, where he even declared it to be his wish that he might be attacked. But by this time the spirit of his army was humbled, desertions became numerous, and the want of discipline was extreme. On the 1st of October the French crossed the Maese and the Roer, and attacked the whole Austrian posts from Ruremond down to Juliers. After a bloody engagement, the brave and active, though unfortunate, General Clairfait was compelled hastily to cross the Rhine, with the loss of 10 or 12,000 men. The French general did not attempt to cross that river, but one detachment of his army took possession of Coblentz, while others laid close siege to Venlo and Maestricht, which soon surrendered.

209 And their progress in the conquest of Holland.

The division of the French army, in the mean time, under General Pichegru came down upon Holland, and attacked the allied army under the duke of York between Bois-le-duc and Grave. They forced the advanced post of Boxtel. Lieutenant-general Abercromby was sent to attempt to recover this post on the 15th of September, but he found the French in such force that he was obliged to retreat. Indeed the French were discovered to be no less than 80,000 strong in that neighbourhood. The duke of York was unable to contend against a force so superior, and retired across the Maese with the loss of somewhat less than 1500 men. Pichegru immediately laid siege to Bois-le-duc. On the 30th of September, Crevecœur was taken, and Bois-le-duc surrendered in 10 days thereafter. In it 408 French emigrants were taken prisoners; and these, as well as 700 that had been taken at Nieuport, 500 at Sluys, and 1100 at Valenciennes, were all put to death, agreeably to the rigorous law formerly made by the convention. The French now followed the duke of York across the Maese. Upon this the greater part of the allied army under his royal highness crossed the Rhine and took post at Arnheim. The remaining part of the army followed soon after, and Nimeguen was occupied by the French on the 7th of November. The duke of Brunswick was at this time requested to take the command of the allied army, to protect Holland, if possible. He came to Arnheim for that purpose; but after examining the state of things there, he declined the undertaking. The allied troops had now so often fled before their victorious and almost innumerable enemies, they had so often been in want of every necessary, and had been received so ill by the inhabitants of the countries through which they passed, among whom the French cause was extremely popular, that they had lost that regularity of conduct and discipline which alone can afford a secure prospect of success in military affairs.

French Revolution, 1794.

210 Conduct discipline and state of the French armies.

The French, on the contrary, well received, abounding in every thing, and proud of fighting in a popular cause, now acted with much order, and submitted to the strictest discipline. In addition to all these advantages, the French leaders had the dexterity to persuade the world that new and unknown arts were employed to give aid to their cause. At this period the *telegraphe* was first used for conveying intelligence from the frontiers to the capital, and from the capital to the frontiers. (See TELEGRAPHE). Balloons were also used by the French during this campaign to procure knowledge of the position of the enemy. An engineer ascended with the balloon, which was suffered to rise to a great height, but prevented from flying away by a long cord. He made plans of the enemies encampment; and during an attack he sent down notice of every hostile movement. In the affairs of men, and more especially in military transactions, opinion is of more importance than reality. The French soldiers confided in their own officers as men possessed of a kind of omniscience, while the allied troops, no doubt, beheld with anxiety a new contrivance employed against them, whose importance would be readily magnified by credulity and ignorance. With all these advantages, however, after the capture of Nimeguen, they once more made a halt in their carrier, and abstained from the attack of Holland, which now seemed almost prostrate before them.

211 Their successes in Spain.

While these events occurred in the north, the French arms were scarcely less successful on the side of Spain. Bellegarde was taken; in the Western Pyrenees, Fontarabia surrendered, and also St Sebastian; the whole kingdom of Spain seemed panic struck. That feeble government, with an almost impregnable frontier, and the most powerful fortresses, could make little resistance; and the difficult nature of their country was their only protection. The history of this war is only a history of victories on the part of the French. In the Eastern Pyrenees, on the 17th of November, the French general Dugommier was killed in an engagement, in which his army was successful. On the 20th of that month the French again attacked the Spaniards, and routed them by means of the bayonet, without firing a single musket-shot. Tents, baggage, and cannon, for an army of 50,000 men, fell into the hand of the conquerors, along with a great part of the province of Navarre. Towards the end of the year, an army of 40,000 Spaniards, entrenched behind 80 redoubts, the labour of six months, suffered themselves to be completely routed; their general count de La Union was found dead on the field of battle, and the whole Spanish artillery was taken. In three days thereafter, the fort Fernando de Figueres, containing a garrison of 9107 men, surrendered, although it mounted 171 pieces of cannon, and possessed abundance of provisions. The French continued their conquests; Rosas was taken, and the whole province of Catalonia was left at the mercy of the invaders.

212 The conquest of Holland complete.

The successes of this wonderful campaign were not yet terminated; and the last part of them is perhaps the most important, although no great effort was necessary to its execution. The winter now set in with uncommon severity. For some years past the seasons of Europe had been uncommonly mild; there had been little frost in winter, and no intense heat in summer. But during the late season the weather had long been remarkably

French Revolution. 1795.

markably dry till the latter part of harveſt, when there fell a conſiderable, though by no means unuſual, quantity of rain. Towards the end of December a ſevere froſt bound up the whole of the rivers and lakes of Holland. The Waal was frozen over in the beginning of January; a circumſtance which had not occurred for 14 years paſt. Taking advantage of this, the French croſſed that river, and with little oppoſition ſeized the important paſs of Bommell, which at other ſeaſons is ſo ſtrong by its inundations. The allied army had been joined by 17,000 Auſtrians, and had received orders to defend Holland to the laſt. They did ſo, and were ſucceſsful in repulſing the French for ſome days between the Waal and the Leck; but the republican army, amounting to 70,000 men, having at laſt advanced in full force, the allied troops were compelled to retire acroſs the Yſſel into Weſtphalia. In the courſe of their march throughthis deſert country, in the midſt of ſevere froſt and a deep ſnow, they are ſaid to have ſuffered incredible hardſhips, and to have loſt a very great number of men. The French, in the mean time, advanced rapidly acroſs the country to the Zuyder ſea, to prevent the inhabitants from flying, and carrying off their property. On the 16th of January 1795, a party of horſe, without reſiſtance, took poſſeſſion of Amſterdam. The other towns ſurrendered at diſcretion. In conſequence of an order from the States General, the ſtrong fortreſſes of Bergen-op-zoon, Williamſtadt, Breda, &c. opened their gates to the French. The fleet and the ſhipping were fixed by the intenſe froſt in their ſtations, and fell a prey to the enemy; who thus, with little effort, made a complete conqueſt of this populous and once powerful country. The French were well received by the people at large. The power of the Stadtholder had been ſupported among them merely by the influence of Pruſſia and England. Through hatred to this office, which had now become odious chiefly to the mercantile ariſtocracy of Holland, they were little attached to their allies, and gave them, during the preſent war, as little ſupport as poſſible. The Stadtholder and his family now fled to England. The French declared, that they did not mean to make ſubjects but allies of the Dutch, and invited them to call together popular aſſemblies for ſettling their own government, under the protection of the French republic.

Thus terminated a campaign, the moſt aſtoniſhing, perhaps, that has been known in the hiſtory of mankind. In the courſe of it, even before the conqueſt of Holland, the French had taken 2000 pieces of cannon and 60,000 priſoners. After that event, the conquered territories added to them a population of nearly 14 millions of people. Luxembourg and Mentz were the only places on this ſide of the Rhine that reſiſted them. The former was cloſely blockaded, for the purpoſe of compelling it to ſurrender; the latter was ſeveral times aſſaulted, but ſucceſsfully held out.

213 The diet of Ratiſbon ſues for peace.

Europe was now weary of this bloody ſtrife. The German Diet of Ratiſbon declared its reſolution to take meaſures for procuring peace. The Grand Duke of Tuſcany concluded a treaty with the French republic. France itſelf, exhauſted by maſſacres, emigrations, and the terrible efforts which it had made, wiſhed for tranquillity; and the Convention found it neceſſary to declare that they were willing to treat for peace with any of the powers of Europe, upon honourable terms.

French Revolution. 1795.

214 Britain and Auſtria determine on a vigorous proſecution of the war.

The frequent changes, however, which have with aſtoniſhing rapidity taken place in the mode of conducting French affairs, and the different principles diſplayed by the different factions as they ſucceſſively got into power, have produced in Great Britain and Auſtria a very general perſuaſion that no peace concluded with the preſent Convention could either be honourable or permanent; and therefore theſe two mighty nations have reſolved to continue the war with redoubled vigour.—In ſupport of the wiſdom of this reſolution, it has been obſerved, that the hatred of the Mountain to the Girondiſts was ſuch, that it would have violated any treaty which had been concluded with them; that when Robeſpierre became all powerful, and terror was the order of the day, all former meaſures were changed, and peace or war made wholly ſubſervient to the ambitious views of that relentleſs tyrant; that Tallien, having originally belonged to the Mountain, introduced the preſent ſyſtem of moderation, not from principle, but only to reconcile the people to his uſurped authority, and the fall of his bloody predeceſſor; that he may ſuddenly change his meaſures, or be denounced and executed by the influence of ſome more daring demagogue, who would again introduce the ſyſtem of terror; and that in ſuch a ſtate of uncertainty, the only conſequence to be expected from making peace at preſent is, that it would furniſh the next faction which may gain the aſcendancy in France with an opportunity of attacking the allies when leſs prepared to receive them. Such reaſoning as this has been admitted in the Britiſh parliament, where a loan of ſix millions Sterling has been voted to the Emperor, to enable him to begin the enſuing campaign with an army of 200,000 men. In what manner the war ought to be conducted, it is not for us to ſay. The Britiſh nation ſeems to reſt its hopes on its ſuperiority at ſea; and the greateſt exertions are making to augment and man the navy. But we are here under the neceſſity of dropping this ſubject, without being able completely to fulfil the promiſe which we made to our readers at the end of the article France. There is as little appearance at preſent of peace, and a ſteady government being ſoon reſtored to that diſtracted country, as there was at the beginning of the troubles; and there is not the ſmalleſt probability that the republican conſtitution, framed by the Convention, will laſt one year after the diſſolution of that aſſembly.

215 Concluſion.

In tracing the origin and progreſs of this wonderful revolution, we have conſulted every work from which we had reaſon to look for information, and we have confined ourſelves to a ſimple narration of facts, ſeldom giving way to the reflections which they ſuggeſted. Our facts, too, have been generally ſtated from writers who are ſuppoſed to be not unfriendly to democracy, that they may gain the fuller credit with our own reformers; for in the moſt favourable point of view in which thoſe facts can be placed, they furniſh the ſtrongeſt objection poſſible to all their propoſed reformations of the Britiſh conſtitution. If the horrible deeds of darkneſs which have been acted on the theatre of France cannot make us contented with the government under which we live, and which has been brought to its preſent ſtate of perfection, not by the metaphyſical ſpeculations of recluſe philoſophers, but by obſervation and the practical experience of ages, we ſhall be conſidered by poſterity as a

people incapable of instruction, and ripe for the greatest miseries in which we may be involved.

REVULSION, in medicine, turning a flux of humours from one part to another by bleeding, cupping, friction, sinapisms, blisters, fomentations, bathings, issues, setons, strong purging of the bowels, &c.

REYN (Jan de), an eminent history and portrait painter, born at Dunkirk in 1610. He had the good fortune to be a disciple of Vandyke, was the first performer in his school, and was so attached to his master that he followed him to London, where it is thought he continued as long as he lived. In these kingdoms he is mostly known by the name of *Lang Jan*. He died in 1678: and it is imagined that the scarcity of his works is occasioned by so many of them being imputed to Vandyke; a circumstance which, if true, is beyond any thing that could be said in his praise.

REYNOLDS (Sir Joshua), the celebrated painter, was, on July the 16th 1723, born at Plympton, a small town in Devonshire. His father was minister of the parish, and also master of the grammar school; and being a man of learning and philanthropy, he was beloved and respected by all to whom he was known.—Such a man, it will naturally be supposed, was assiduous in the cultivation of the minds of his children, among whom his son Joshua shone conspicuous, by displaying at a very early period a superiority of genius, and the rudiments of a correct taste. Unlike other boys, who generally content themselves with giving a literal explanation of their author, regardless of his beauties or his faults, young Reynolds attended to both these, displaying a happy knowledge of what he read, and entering with ardour into the spirit of his author. He discovered likewise talents for composition, and a natural propensity to drawing, in which his friends and intimates thought him qualified to excel. Emulation was a distinguishing feature in his mind, which his father perceived with the delight natural to a parent; and designing him for the church, in which he hoped that his talents might raise him to eminence, he sent him to one of the universities.

Soon after this period he grew passionately fond of painting; and, by the perusal of Richardson's theory of that art, was determined to make it his profession through life. At his own earnest request, therefore, he was removed to London; and about the year 1742 became a pupil to Mr Hudson, who, though not himself an eminent painter was preceptor to several who afterwards excelled in the art. One of the first advices which he gave to Mr Reynolds was to copy carefully Guercino's drawings. This was done with such skill, that many of the copies are said to be now preserved in the cabinets of the curious as the originals of that very great master.

About the year 1749, Mr Reynolds went to Italy under the auspices, and in the company, of the late Lord (then Commodore) Keppel, who was appointed to the command of the British squadron in the Mediterranean. In this garden of the world, this magic seat of the arts, he failed not to visit the schools of the great masters, to study the productions of different ages, and to contemplate with unwearied attention the various beauties which are characteristic of each. His labour here, as has been observed of another painter, was "the labour of love, not the task of the hireling;" and how much he profited by it is known to all Europe.

Having remained about two years in Italy, and studied the language as well as the arts of the country with great success, he returned to England, improved by travel and refined by education. On the road to London from the port where he landed, he accidentally found in the inn where he lodged Johnson's life of Savage; and was so taken with the charms of composition, and the masterly delineation of character displayed in that performance, that, having begun to read it while leaning with his arm on the chimney-piece, he continued in that attitude insensible of pain till he was hardly able to raise his hand to his head. The admiration of the work naturally led him to seek the acquaintance of its author, who continued one of his sincerest admirers and warmest friends, till 1784, when they were separated by the stroke of death.

The first thing that distinguished him after his return to his native country, was a full length portrait of Commodore Keppel; which in the polite circles was spoken of in terms of the highest encomium, and testified to what a degree of eminence he had arrived in his profession. This was followed by a portrait of Lord Edgecombe, and a few others, which at once introduced him to the first business in portrait painting; and that branch of the art he cultivated with such success as will for ever establish his fame with all descriptions of refined society. Having painted some of the first-rate beauties of the age, the polite world flocked to see the graces and the charms of his pencil; and he soon became the most fashionable painter, not only in England, but in all Europe. He has indeed preserved the resemblance of so many illustrious characters, that we feel the less regret for his having left behind him so few historical paintings; though what he has done in that way shews (A) him to have been qualified to excel in both departments. The only landscape, perhaps, which he

(A) As the lovers of painting may wish to have a catalogue of this great master's historical pieces, we subjoin the following from the European Magazine, which we have good reason to believe accurate, as the editors of that miscellany spared neither trouble nor expence to procure authentic information. Sir Joshua's principal historical pieces, then, are the following: Hope nursing Love; Venus chastising Cupid for having learned to cast accounts; Count Ugolino in the dungeon; the calling of Samuel; Ariadne; a Captain of banditti; Beggar Boy; a Lady in the character of St Agnes; Thais; Dionysius the Areopagite; an infant Jupiter; Master Crewe in the character of Henry VIII; the death of Dido; a Child asleep; Cupid sleeping; Covent Garden Cupid; Cupid in the Clouds; Cupids painting; Boy laughing; Master Herbert in the character of Bacchus; Hebe; Miss Meyer in the character of Hebe; Madona, a head; the Black-guard Mercury; a little boy (Samuel) praying; and old Man reading; Love loosing the zone of Beauty; the Children in the Wood; Cleopatra

he ever painted, except those beautiful and chaste ones which compose the back grounds of many of his portraits, is "A View on the Thames from Richmond," which in 1784 was exhibited by the Society for Promoting Painting and Design in Liverpool.

In 1764 Mr Reynolds had the merit of being the first promoter of that club, which, having long existed without a name, became at last distinguished by the appellation of the *Literary Club*. Upon the foundation of the Royal Academy of Painting, Sculpture, and Architecture, he was appointed president; and his acknowledged excellence in his profession made the appointment acceptable to all the lovers of art. To add to the dignity of this new institution, his majesty conferred on the president the honour of knighthood; and Sir Joshua delivered his first discourse at the opening of the Academy on January 2. 1769. The merit of that discourse has been universally admitted among painters; but it contains some directions respecting the proper mode of prosecuting their studies, to which every student of every art would do well to pay attention. "I would chiefly recommend (says he), that an implicit obedience to the *rules of art*, as established by the practice of the great masters, should be exacted from the young students. That those models, which have passed through the approbation of ages, should be considered by them as perfect and infallible guides; as subjects for their imitation, not their criticism. I am confident, that this is the only efficacious method of making a progress in the arts; and that he who sets out with doubting, will find life finished before he becomes master of the rudiments. For it may be laid down as a maxim, that he who begins by presuming on his own sense, has ended his studies as soon as he has commenced them. Every opportunity, therefore, should be taken to discountenance that false and vulgar opinion, that rules are the fetters of genius. They are fetters only to men of no genius; as that armour which, upon the strong, becomes an ornament and a defence, upon the weak and mishapen turns into a load, and cripples the body which it was made to protect."

Each succeeding year, on the distribution of the prizes, Sir Joshua delivered to the students a discourse of equal merit with this: and perhaps we do not hazard too much when we say, that, from the whole collected, the lover of belles lettres and the fine arts will acquire juster notions of what is meant by taste in general, and better rules for acquiring a correct taste, than from multitudes of those volumes which have been professedly written on the subject.

In the autumn of 1785 he went to Brussels, where he expended about L. 1000 on the purchase of paintings, which, having been taken from the different monasteries and religious houses in Flanders and Germany, were then exposed to sale by the command of the Emperor Joseph! Gainsborough and he had engaged to paint each other's portrait; and the canvas for both being actually stretched, Sir Joshua gave one sitting to his distinguished rival; but, to the regret of every admirer of the art, the unexpected death of the latter prevented all further progress.

In 1790 he was anxiously desirous to procure the vacant professorship of perspective in the academy for Mr Bonomi, an Italian architect; but that artist not having been yet elected, an associate was of course no academician, and it became necessary to raise him to those situations, in order to qualify him for being a professor. Mr Gilpin being his competitor for the associateship, the numbers on the ballot proved equal, when the president by his casting vote decided the election in favour of his friend, who was thereby advanced so far towards the professorship. Soon after this, an academic seat being vacant, Sir Joshua exerted all his influence to obtain it for Mr Bonomi; but finding himself outvoted by a majority of two to one, he quitted the chair with great dissatisfaction, and next day sent to the secretary of the academy a formal resignation of the office, which for twenty-one years he had filled with honour to himself and his country. His indignation, however, subsiding, he suffered himself to be prevailed upon to return to the chair, which within a year and a half he was again desirous to quit for a better reason.

Finding a disease of languor, occasioned by an enlargement of the liver, to which he had for some time been subject, increase upon him, and daily expecting the total loss of sight, he wrote a letter to the academy, intimating his intention to resign the office of president on account of bodily infirmities, which disabled him from executing the duties of it to his own satisfaction. The academicians received this intelligence with the respectful concern due to the talents and virtues of their president; and either then did enter, or designed to enter, into a resolution, honourable to all parties, namely, that a deputation from the whole body of the academy should wait upon him, and inform him of their wish, that the authority and privileges of the office of president might be his during his life; declaring their willingness to permit the performance of any of its duties which might be irksome to him by a deputy.

From this period Sir Joshua never painted more. The last effort of his pencil was the portrait of the Honourable Charles James Fox, which was executed in his best

patra dissolving the Pearl; Garrick in the character of Kitely; Garrick between Tragedy and Comedy; Mrs Abingdon in the character of Comedy; a Child surrounded by Guardian Angels; Miss Beauclerc in the character of Spenser's Una; Resignation; the Duchess of Manchester in the character of Diana; Lady Blake in the character of Juno; Mrs Sheridan in the character of St Cecilia; Edwin, from Beattie's Minstrel; the Nativity, Four Cardinal Virtues, and Faith, Hope, and Charity, for the window of New College Chapel, Oxford; the Studious Boy; a Bacchante; a daughter of Lord W. Gordon as an Angel; the Holy Family; the Cottagers, from Thomson; the Vestal; the Careful Shepherdess; a Gypsey telling Fortunes; the infant Hercules strangling the Serpent; the Mouse-trap girl; Venus; Cornelia and her Children; the Bird; Melancholy; Mrs Siddons in Tragedy; Head of Lear; Mrs Talmash in the character of Miranda, with Prospero and Caliban; Robin Goodfellow; Death of Cardinal Beaufort; Macbeth, with the Caldron of the Witches.

Reynolds. best style, and shows that his fancy, his imagination, and his other great powers in the art which he professed, remained unabated to the end of his life. When the last touches were given to this picture,

"The hand of Reynolds fell, to rise no more."

On Thursday February the 23d 1792, the world was deprived of this amiable man and excellent artist at the age of 68 years; a man than whom no one, according to Johnson, had passed through life with more observation of men and manners. The following character of him is said to be the production of Mr Burke:

"His illness was long, but borne with a mild and cheerful fortitude, without the least mixture of any thing irritable or querulous, agreeably to the placid and even tenor of his whole life. He had from the beginning of his malady a distinct view of his dissolution, which he contemplated with that entire composure which nothing but the innocence, integrity, and usefulness of his life, and an unaffected submission to the will of Providence, could bestow. In this situation he had every consolation from family tenderness, which his tenderness to his family had always merited.

"Sir Joshua Reynolds was, on very many accounts, one of the most memorable men of his time: He was the first Englishman who added the praise of the elegant arts to the other glories of his country. In taste, in grace, in facility, in happy invention, and in the richness and harmony of colouring, he was equal to the great masters of the renowned ages. In portrait he went beyond them; for he communicated to that description of the art in which English artists are the most engaged, a variety, a fancy, and a dignity, derived from the higher branches, which even those who professed them in a superior manner did not always preserve when they delineated individual nature. His portraits remind the spectator of the invention of history and the amenity of landscape. In painting portraits, he appears not to be raised upon that platform, but to descend to it from a higher sphere. His paintings illustrate his lessons, and his lessons seem to be derived from his paintings.

"He possessed the theory as perfectly as the practice of his art. To be such a painter, he was a profound and penetrating philosopher.

"In full happiness of foreign and domestic fame, admired by the expert in art, and by the learned in science, courted by the great, caressed by sovereign powers, and celebrated by distinguished poets, his native humility, modesty, and candour, never forsook him, even on surprise or provocation; nor was the least degree of arrogance or assumption visible to the most scrutinizing eye in any part of his conduct or discourse.

"His talents of every kind—powerful from nature, and not meanly cultivated in letters—his social virtues in all the relations and all the habitudes of life, rendered him the centre of a very great and unparalleled variety of agreeable societies, which will be dissipated by his death. He had too much merit not to excite some jealousy, too much innocence to provoke any enmity. The loss of no man of his time can be felt with more sincere, general, and unmixed sorrow."

Rez || Rha.

REZAN, or Rezanskoi, an ancient town of Russia, and capital of a duchy of the same name, with an archbishop's see. It was formerly considerable for its extent and riches; but it was almost ruined by the Tartars in 1568. The country is populous, and was formerly governed by its own princes. E. Long. 42. 37. N. Lat. 54. 54.

RHADAMANTHUS, a severe judge, and king of Lydia; the poets make him one of the three judges of hell.

RHAGADES, in medicine, denotes chaps or clefts in any part of the body. If seated in the anus, and recent, the patient must sit still, and sit over the steam of warm water. The epulotic cerate may also be applied. If the lips of these fissures are callous, they must be cut or otherwise treated as to become new ulcerations.

RHAMA, or Rama, an incarnate deity of the first rank, in Indian mythology. Sir William Jones believes he was the Dionysos (A) of the Greeks, whom they named *Bromius*, without knowing why; and *Bugenes*, when they represented him *horned*, as well as *Lyaios* and *Eleutherios* the deliverer, and *Triambos* or *Dythyrambos* the triumphant. "Most of those titles (says Sir William) were adopted by the Romans, by whom he was called *Bromi*, *Tauriformis*, *Liber*, and *Triumphus*; and both nations had records or traditionary accounts of his giving laws to men and deciding their contests, of his improving navigation and commerce, and, what may appear yet more observable, of his conquering India and other countries with an army of satyrs, commanded by no less a personage than Pan; whom Lillius Giraldus, on what authority I know not, asserts to have resided in Iberia 'when he had returned, says the learned mythologist, from the Indian war, in which he accompanied Bacchus.' It were superfluous in a mere essay to run any length in the parallel between this European god and the sovereign of Ayodhya, whom the Hindoos believe to have been an appearance on earth of the preserving power; to have been a conqueror of the highest renown, and the deliverer of nations from tyrants, as well as of his consort Sita from the giant Ravan king of Lanca; and to have commanded in chief a numerous and intrepid race of those large monkeys, which our naturalists, or some of them, have denominated Indian satyrs: his general, the prince of satyrs, was named *Hanumat*, or "with high cheek bones;" and, with workmen of such agility, he soon raised a bridge of rocks over the sea, part of which, say the Hindoos, yet remains; and it is probable the series of rocks to which the Mussulmans or the Portuguese have given the foolish name of *Adam's* (it should be called *Rama's*) bridge. Might not this

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5 army

(A) The learned president, whose death will be lamented by every scholar, by the orientalist and the divine especially, imagines, that this would fully appear from comparing together the *Dionysiaca* of Nonnus and the *Ramayan* of Valmic, the first poet of the Hindoos. He adds, that, in his opinion, Rhama was the son of Cush, and that he might have established the first regular government in that part of Asia, in which his exploits are said to have been performed.

army of satyrs have been only a race of mountaineers, whom Rama, if such a monarch ever existed, had civilized? However that may be, the large breed of Indian apes is at this moment held in high veneration by the Hindoos, and fed with devotion by the Brahmans, who seem in two or three places on the banks of the Ganges to have a regular endowment for the support of them: they live in tribes of three or four hundred, are wonderfully gentle (I speak as an eye-witness), and appear to have some kind of order and subordination in their little sylvan polity." The festival of Rhama is held on the 9th day of the new moon of Chaitra, on which the war of Lauca is dramatically represented, concluding with an exhibition of the fire ordeal, by which the victor's wife Sita gave proof of her connubial fidelity. Among the Hindoos there are a variety of very fine dramas of great antiquity on the story of Rhama.

There are three Rhamas mentioned in the Indian mythology, who, together with Crishna, the darling god of the Indian women, are described as youths of perfect beauty. The third Rhama is Crishna's elder brother, and is considered as the eighth Avatar (B), invested with an emanation of his divine radiance. Like all the Avatars, Rhama is painted with gemmed Ethiopian or Parthian coronets; with rays encircling his head, jewels in his ears, two necklaces, one straight and one pendant on his bosom, with dropping gems; garlands of well-disposed many-coloured flowers, or collars of pearls, hanging down below his waist; loose mantles of golden tissue or dyed silk, embroidered on the hems with flowers elegantly thrown over one shoulder, and folded like ribbands across the breast; with bracelets, two on one arm and on each wrist: all the Avatars are naked to the waists, and uniformly with dark azure flesh, in allusion probably to the tint of that primordial fluid on which Narayan moved in the beginning of time; but their skirts are bright yellow, the colour of the curious pericarpium in the centre of the water-lily.

RHAMNUS, the BUCKTHORN, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 43d order, *Dumosæ*. The calyx is tubulous, with five minute scales surrounding the stamina; there is no corolla; the fruit is a berry. There are 27 species; of which the most remarkable are,

1. The catharticus, or common purging buckthorn, growing naturally in some parts of Britain. This grows to the height of 12 or 14 feet, with many irregular branches at the extremities. The leaves are oval-lanceolate, finely serrated on the edges, their nerves converging together. The flowers grow in clusters, one on each footstalk, white, and in this species divided into four segments: the fruit is a round black berry, containing four seeds. The juice of the berries is a strong purgative, and is made use of for making the common syrup of buckthorn kept in the shops. The bark is emetic: the juice of the unripe berries with alum dyes yellow, of the ripe ones a fine green; the bark also dyes yellow. The green colour yielded by the berries, called by the French *verde-vessie*, is much esteemed by miniature painters. Rhamnus.

Of this species there are two varieties, *viz.* the dwarf buckthorn, a shrub of about a yard high, of a greenish colour but little show; and the long-leaved dwarf buckthorn, which is a larger shrub, with leaves somewhat larger, but in other respects very similar to the dwarf buckthorn.

2. The zizyphus is the species in which the lac insect* forms its cells, and produces the wax called *gum-lac*. See LACCA. * See Coccus.

3. The lotus has the leaves, prickles, flowers, and fruit, of the zizyphus or jubeb; only with this difference, that the fruit is here round, smaller, and more luscious, and at the same time the branches, like those of the paliurus, are neither so much jointed nor crooked. The fruit is in great repute, tastes something like gingerbread, and is sold in the markets all over the southern districts of these kingdoms. The Arabs call it *aneb etta el seedra* or *the jubeb of the seedra*; which Olavus Celsius had so high an opinion of, that he has described it as the dudaim of the scriptures. This species is very common in the Jereede and other parts of Bombay; and has been supposed by some to be the same plant with that celebrated by Homer for its enchanting property; though the latter is more generally supposed to have been a species of DIOSPYROS (which see). It is proper, however, to distinguish between both these shrubs and an herb often mentioned by the ancients under the name of *lotus*, which Homer mentions as being fed upon by the horses of Achilles, and Virgil as proper to increase the milk of sheep (see LOTUS). They are also different from the Egyptian lotus described by Herodotus; for which see NYMPHÆA.

4. The frangula, or berry-bearing alder, is a deciduous shrub, a native of England and most of the northern parts of Europe, and affords several varieties.

5. The Alpine, rough-leaved frangula, or berry-bearing alder, is also a deciduous shrub, and native of the Alps. It differs in no respect from the common sort, except that it has no thorns, and that it will grow to be rather taller, with tough, large, and doubly laciniated leaves. The smooth-leaved Alpine frangula is a variety of this species, with smooth leaves and of a lower growth.

6. The paliurus, or thorn of Christ, is a deciduous shrub or tree, a native of Palestine, Spain, Portugal, and Italy. It will grow to nearly the height of 14 feet,

(B) *Avatar* means the descent of the deity in his capacity of preserver. The three first of these descents relate to some stupendous convulsion of our globe from the fountains of the deep, and the fourth exhibits the miraculous punishment of pride and impiety, appearing to refer to the deluge. Three of the others were ordained for the overthrow of tyrants or giants. Of these Avatars we have mentioned in the text, that Rhama is the eighth; Buddha, who appears to have been a reformer of the doctrines contained in Vedas, is the ninth: the tenth Avatar, we are told, is yet to come, and is expected to appear mounted (like the crowned conqueror in the Apocalypse) on a white horse, with a scimeter blazing like a comet to mow down all incorrigible and impenitent offenders who shall then be on the earth.

Rhamnus, Rhamphastos.

feet, and is armed with sharp thorns, two of which are at each joint, one of which is about half an inch long, straight, and upright; the other is scarcely half that length, and bent backward; and between them is the bud for next year's shoot. June is the time of flowering, and the flowers are succeeded by a small fruit, surrounded by a membrane. "This plant (says Hanbury) is undoubtedly the sort of which the crown of thorns for our Blessed Saviour was composed. The branches are very pliant, and the spines of it are at every joint strong and sharp. It grows naturally about Jerusalem, as well as in many parts of Judæa; and there is no doubt that the barbarous Jews would make choice of it for their cruel purpose. But what farther confirms the truth of these thorns being then used, are the ancient pictures of our Blessed Saviour's crucifixion. The thorns of the crown on his head exactly answer to those of this tree; and there is great reason to suppose these were taken from the earliest paintings of the Lord of Life: and even now our modern painters copy from them, and represent the crown as composed of these thorns. These plants, therefore, should principally have a share in those parts of the plantation that are more peculiarly designed for religious retirement; for they will prove excellent monitors, and conduce to due reflection on and gratitude to 'Him who hath loved us, and has washed us from our sins," &c.

7. The common alaternus is an evergreen tree, and native of the south of Europe. There are several varieties of this species; the most remarkable of which are the broad-leaved and the jagged-leaved alaternus, which have all been confounded with the phillyrea.

8. The infectorius, or narrow-leaved buckthorn, is an evergreen shrub or tree, and native of Spain. It grows to the height of 10 or 12 feet, and sends forth several branches from the bottom to the top. They are covered with a blackish or dark-coloured bark, and each of them is terminated by a long sharp thorn. The fruit continues on the trees all winter, making a beautiful appearance among the narrow-clustered leaves at that season.

9. The oleoides, or olive-leaved buckthorn, is an evergreen shrub, and native of Spain, and grows to the height of 8 or 10 feet. It sends forth numerous branches, each of which is terminated by a long sharp spine. The flowers are small, of a whitish green colour, and are succeeded by round black berries.

RHAMPHASTOS, in ornithology, a genus belonging to the order of picæ. The bill is very large, and serrated outwardly. The nostrils are situated behind the base of the beak; and in most of the species the feet are toed, and placed two forwards and two backwards. The tongue is long, narrow, and feathered on the edges. Mr Latham enumerates 15 different species; of which the toucans are the most remarkable, and were formerly divided into four or five varieties, though Mr Latham makes them distinct species, of which we shall only describe that called the red-beaked toucan.

Plate CCCCXXVII.

This bird is about the size of a jackdaw, and of a similar shape, with a large head to support its monstrous bill: this bill, from the angles of the mouth to its point, is six inches and an half; and its breadth in the thickest part is a little more than two. Its thickness near the head is one inch and a quarter; and it is a little rounded along the top of the upper chap, the under side being round also; the whole of the bill extremely slight, and a little thicker than parchment. The upper chap is of a bright yellow, except on each side, which is of a fine scarlet colour; as is also the lower chap, except at the base, which is purple. Between the head and the bill there is a black line of separation all round the base of the bill; in the upper part of which the nostrils are placed, and are almost covered with feathers; which has occasioned some writers to say that the toucan has no nostrils. Round the eyes, on each side of the head, is a space of bluish skin, void of feathers; above which the head is black, except a white spot on each side joining to the base of the upper chap. The hinder part of the neck, the back, wings, tail, belly, and thighs, are black. The under side of the head, throat, and the beginning of the breast, are white. Between the white on the breast, and the black on the belly, is a space of red feathers, in the form of a new moon, with its horns upwards. The legs, feet, and claws, are of an ash-colour; and the toes stand like those of parrots, two before and two behind.

It is reported by travellers, that this bird, though furnished with so formidable a beak, is harmless and gentle, being so easily made tame as to sit and hatch its young in houses. It feeds chiefly upon pepper, which it devours very greedily, gorging itself in such a manner that it voids it crude and unconcocted. This, however, is no objection to the natives from using it again: they even prefer it before that pepper which is fresh gathered from the tree; and seem persuaded that the strength and heat of the pepper is qualified by the bird, and that all its noxious qualities are thus exhausted.

Whatever be the truth of this report, nothing is more certain than that the toucan lives only upon a vegetable diet; and, in a domestic state, to which it is frequently brought in the warm countries where it is bred, it is seen to prefer such food to all other. Pozzo, who bred one tame, asserts, that it leaped up and down, wagged the tail, and cried with a voice resembling that of a magpie. It fed upon the same things that parrots do; but was most greedy of grapes, which, being plucked off one by one, and thrown in the air, it would most dexterously catch before they fell to the ground. Its bill, he adds, was hollow, and upon that account very light, so that it had but little strength in so apparently formidable a weapon; nor could it peck or strike smartly therewith. But its tongue seemed to assist the efforts of this unwieldy machine: it was long, thin, and flat, not unlike one of the feathers on the neck of a dunghill cock; this it moved up and down, and often extended five or six inches from the bill. It was of a flesh colour, and remarkably fringed on each side with very small filaments, exactly resembling a feather.

It is probable that this long tongue has greater strength than the thin hollow beak that contains it. It is likely that the beak is only a kind of sheath for this peculiar instrument, used by the toucan, not only in making itself a nest, but also in obtaining its provision. Nothing is more certain, than that this bird builds its nest in holes of trees, which have been previously


Ricinus. Americanus.
RAMPHASTOS Tucan.
icinus Communis.
RHEA
Americana.

viously scooped out for this purpose; and it is not very likely that so feeble a bill could be very serviceable in working upon such hard materials.

Be this as it will, there is no bird secures its young better from external injury than the toucan. It has not only birds, men, and serpents, to guard against; but a numerous tribe of monkeys, still more prying, mischievous, and hungry, than all the rest. The toucan, however, scoops out its nest into the hollow of some tree, leaving only a hole large enough to go in and out at. There it sits, with its great beak, guarding the entrance; and if the monkey ventures to offer a visit of curiosity, the toucan gives him such a welcome, that he presently thinks proper to pack off, and is glad to escape with safety.

This bird is only found in the warm climates of South America, where it is in great request, both for the delicacy of its flesh, which is tender and nourishing, and for the beauty of its plumage, particularly the feathers of the breast. The skin of this part the Indians pluck off, and when dry glue to their cheeks; and this they consider as an irresistible addition to their beauty.

RHAPIS, in botany: A genus of the monogynia order, belonging to the hexandria class of plants; and in the natural method ranking under the first order, *Palmæ*. The calyx is a monophyllous trifid spatha; the corolla monopetalous and trifid. There are two species, *viz.* 1. Flabilliformis, or ground-ratan, a native of China; 2. Arundinacea, simple leaved rhapis, a native of Carolina.

RHAPSODI, Rhapsodists, in antiquity, persons who made a business of singing pieces of Homer's poems. Cuper informs us, that the Rhapsodi were clothed in red when they sung the Iliad, and in blue when they sung the Odyssey. They performed on the theatres, and sometimes strove for prizes in contests of poetry, singing, &c. After the two antagonists had finished their parts, the two pieces or papers they were written in were joined together again: whence the name, *viz.* from ῥάπτω, *suo*, and ᾠδὴ *canticum*: but there seem to have been other Rhapsodi of more antiquity than these people, who composed heroic poems or songs in praise of heroes and great men, and sung their own compositions from town to town for a livelihood; of which profession Homer himself is said to have been. See Bard.

RHAPSODOMANCY, an ancient kind of divination performed by pitching on a passage of a poet at hazard, and reckoning on it as a prediction of what was to come to pass. There were various ways of practising this rhapsodomancy. Sometimes they wrote several papers or sentences of a poet on so many pieces of wood, paper, or the like, shook them together in an urn, and drew out one which was accounted the lot: sometimes they cast dice on a table whereon verses were written, and that whereon the die lodged contained the prediction. A third manner was by opening a book, and pitching on some verse at first sight. This method they particularly called the *sortes Præneſtinæ*; and afterwards, according to the poet, made use of, *sortes Homericæ*, *sortes Virgilianæ*, &c. See Sortes.

RHAPSODY, in antiquity, a discourse in verse sung or rehearsed by a rhapsodist. Others will have rhapsody to signify a collection of verses, especially those of Homer, which having been a long time dispersed in pieces and fragments, were at length by Pisistratus's order digested into books called *rhapsodies*, from ῥάπτω *suo*, and ᾠδὴ *canticum*. Hence, among moderns, *rhapsody* is also used for an assemblage of passages, thoughts, and authorities, raked together from divers authors, to compose some new piece.

RHE, or Ree, a little island in the Bay of Biscay, near the coast of Aunis in France. It was taken during the war with France which ended in 1763, in the expedition commanded by Hawke and Mordaunt.

RHEA americana. The American ostrich of authors has been frequently mentioned, but till of late years very imperfectly known; being blended by some with other genera, although forming of itself a distinct one, differing in many things from all others. The older writers, however, have kept it separate. It does not occur to us whether any author has figured this bird except *Nieremberg*, whose representation conveys no just idea, which is wonderful, as it is to be met with in sufficient plenty in various parts of South America; nor has the bird itself made its appearance in the cabinets of collectors, until the one now in the Leverian museum.

M. Bajon, in his *Mem. sur Cayenne*, gives a figure and description of the jabirus, and seems clear that this bird is no other than the ostrich of America. From this assertion, Mr Latham, in his *Synopsis*, leaves the matter undecided; but this author, in his *Index Ornithol.* from having met with the specimen above alluded to, and supported in an account of its manners given by Molina in his *Hist. Nat. du Chili*, treats this matter on more certain grounds, so as to enable us to give the following description.

In size the American ostrich is very little inferior to the common one: the bill is sloped not unlike that of a goose, being flat on the top and rounded at the end: the eyes are black, and the lids furnished with hairs: the head is rounded, and covered with downy feathers: the neck is two feet eight inches long, and feathered also: from the tip of one wing to that of the other extended, the length is eight feet; but from the want of continuity of the webs of the feathers, and their laxity of texture, the bird is unable to raise itself from the ground; it is, however, capable of greatly assisting itself by their motion in running, which it does very swiftly: the legs are stout, bare of feathers above the knees, and furnished with three toes, all placed forwards, each having a straight and stout claw as in the cassowary; on the heel is a callous knob, serving in place of a back toe: the general colour of plumage is dull grey mixed with white, inclining to the latter on the under parts: the tail is very short, and not conspicuous, being entirely covered with long loose and floating feathers, having origin from the lower part of the back and rump, and entirely covering it: the bill and legs are brown.

Molina observes that this bird varies; the body in some being white, in others black. In respect to manners, it is said to be a general feeder, but more fond of flies, which it catches with great dexterity, and will also, like the common ostrich, swallow bits of iron and any other trash offered to it. In common with the ostrich of the old world, it lays a number of eggs, from 40 to 60, in the sand, each of them holding a quart

but

but it differs from that bird in many particulars, especially in wanting the callosity on the sternum, and spurs on the wing. With these last the common ostrich is known to defend itself: in defect of them, the one here treated of uses the feet with such address as to become at once a furious and dangerous antagonist. The female calls its young ones together with a kind of whistling note somewhat similar to that of a man: when young it is very tame, frequently following the first creature it meets with. The flesh of this bird is said to be very unpalatable. It is found in various parts of South America, from Patagonia to Guiana, and is known by the name of *Cheique*. We are happy to be able to present our readers with an accurate drawing of the bird. See Plate CCCCXXXVII.

RHEEDIA, in botany: A genus of the monogynia order, belonging to the polyandria class of plants; and in the natural method ranking with those of which the order is doubtful. The corolla is tetrapetalous; there is no calyx; and the fruit is a trispermous berry.

RHEGIUM (anc. geog.), so very ancient a city as to be supposed to take its name from the violent bursting of the coast of Italy from Sicily; thought to have been formerly conjoined (Mela, Virgil). A city of the Bruttii, a colony of Chalcidians from Eubœa: a strong barrier opposed to Sicily (Strabo); mentioned by Luke; surnamed *Julium* (Ptolemy), from a fresh supply of inhabitants sent thither by Augustus, after driving Sextus Pompeius out of Sicily (Strabo); and thus was in part a colony, retaining still the right of a municipium (Inscription). The city is now called *Reggio*, in the Farther Calabria.

RHEIMS, a city of France in Champagne, and capital of Rhemois. It is one of the most ancient, celebrated, and largest places in the kingdom, had an archbishop's see, whose archbishop was duke and peer of France. It is about four miles in circumference, and contains several fine squares, well-built houses, and magnificent churches. It had a mint, an university, and five abbeys, the most famous of which was that of St Remy. There are also several triumphal arches and other monuments of the Romans. It is seated on the river Vesle, on a plain surrounded by hills, which produce excellent wine. E. Long. 4. 8. N. Lat. 49. 14.

RHENISH WINE, that produced on the hills about Rheims. This wine is much used in medicine as a solvent of iron, for which it is well calculated on account of its acidity. Dr Percival observes, that it is the best solvent of the Peruvian bark; in which, however, he thinks its acidity has no share, because an addition of vinegar to water does not augment its solvent power.

RHETORES, amongst the Athenians, were ten in number, elected by lot to plead public causes in the senate-house or assembly. For every cause in which they were retained, they received a drachm out of the public money. They were sometimes called Συνηγοροι, and their fee τὸ Συνηγορικὸν. No man was admitted to this office before he was 40 years of age, though others say 30. Valour in war, piety to their parents, prudence in their affairs, frugality, and temperance, were necessary qualifications for this office, and every candidate underwent an examination concerning these virtues previous to the election. The orators at Rome were not unlike the Athenian rhetores. See ORATOR.

RHETORIANS, a sect of heretics in Egypt, so denominated from Rhetorius their leader. The distinguishing tenets of this heresiarch, as represented by Philastrius, was, that he approved of all the heresies before him, and taught that they were all in the right.

RHETORIC, the art of speaking copiously on any subject, with all the advantages of beauty and force. See ORATORY.

RHEUM, a thin serous humor, occasionally oozing out of the glands about the mouth and throat.

RHEUM, *Rhubarb*: A genus of the monogynia order, belonging to the enneandria class of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. There is no calyx; the corolla is sexfid and persistent; and there is one triquetrous seed. There are five species, viz. 1. The rhaponticum, or common rhubarb, hath a large, thick, fleshy, branching, deeply-striking root, yellowish within; crowned by very large, roundish, heart-shaped smooth leaves, on thick, slightly-furrowed foot-stalks: and an upright strong stem, two or three feet high, adorned with leaves singly, and terminated by thick close spikes of white flowers. It grows in Thrace and Scythia, but has been long in the English gardens. Its root affords a gentle purge. It is however of inferior quality to some of the following sorts; but the plant being astringent, its young stalks in spring, being cut and peeled, are used for tarts. 2. The palmatum, palmated-leaved true Chinese rhubarb, hath a thick fleshy root, yellow within; crowned with very large palmated leaves, being deeply divided into acuminated segments, expanded like an open hand; upright stems, five or six feet high or more, terminated by large spikes of flowers *. This is now proved to be the true foreign rhubarb, the purgative quality of which is well known. 3. The compactum, or Tartarian rhubarb, hath a large, fleshy, branched root, yellow within; crowned by very large, heart-shaped somewhat lobated, sharply indented, smooth leaves, and an upright large stem, five or six feet high, garnished with leaves singly, and branching above; having all the branches terminated by nodding panicles of white flowers. This has been supposed to be the true rhubarb; which, however, though of superior quality to some sorts, is accounted inferior to the rheum palmatum. 4. The undulatum, undulated, or waved-leaved Chinese rhubarb, hath a thick, branchy, deep-striking root, yellow within; crowned with large, oblong, undulate, somewhat hairy leaves, having equal foot-stalks, and an upright firm stem, four feet high; garnished with leaves singly, and terminated by long loose spikes of white flowers. 5. The Arabian ribes, or currant rhubarb of Mount Libanus, hath a thick fleshy root, very broad leaves, full of granulated protuberances, and with equal foot-stalks, and upright firm stems, three or four feet high, terminated by spikes of flowers, succeeded by berry-like seeds, being surrounded by a purple pulp. All these plants are perennial in root, and the leaves and stalks are annual. The roots being thick, fleshy, generally divided, strike deep into the ground; of a brownish colour without and yellow within: the leaves rise in the spring, generally come up in a large head folded together,

* See *Botany*, p. 431 and Plate CVII.

together, gradually expanding themſelves, having thick foot-ſtalks; and grow from one to two feet high, or more, in length and breadth, ſpreading all round: amidſt them riſe the flower-ſtems, which are garniſhed at each joint by one leaf, and are of ſtrong and expeditious growth, attaining their full height in June, when they flower; and are ſucceeded by large triangular ſeeds, ripening in Auguſt. Some plants of each ſort merit culture in gardens for variety; they will effect a ſingularity with their luxuriant foliage, ſpikes, and flowers: and as medical plants, they demand culture both for private and public uſe.

They are generally propagated by ſeeds ſowed in autumn ſoon after they are ripe, or early in the ſpring, in any open bed of light deep earth; remarking, thoſe intended for medical uſe ſhould generally be ſowed where they are to remain, that the roots, being not diſturbed by removal, may grow large. Scatter the ſeeds thinly, either by broad-caſt all over the ſurface, and raked well in; or in ſhallow drills a foot and half diſtance, covering them near an inch deep. The plants will riſe in the ſpring, but not flower till the ſecond or third year: when they, however, are come up two or three inches high, thin them to eight or ten inches, and clear out all weeds; though thoſe deſigned always to ſtand ſhould afterwards be hoed out to a foot and a half or two feet diſtance: obſerving, if any are required for the pleaſure ground, &c. for variety, they ſhould be tranſplanted where they are to remain in autumn, when their leaves decay, or early in ſpring, before they ſhoot: the others remaining where ſowed, muſt have the ground kept clean between them; and in autumn, when the leaves and ſtalks decay, cut them down, and ſlightly dig the ground between the rows of plants, repeating the ſametwork every year. The roots remaining, they increaſe in ſize annually: and in the ſecond or third year many of them will ſhoot up ſtalks, flower, and perfect ſeeds; and in three or four years the roots will be arrived to a large ſize; though older roots are generally preferable for medical uſe.

In Mr Bell's Travels we have an account of ſome curious particulars relating to the culture of rhubarb. He tells us, that the beſt rhubarb grows in that part of Eaſtern Tartary called *Mongalia*, which now ſerves as a boundary between Ruſſia and China. The marmots contribute greatly to the culture of the rhubarb. Wherever you ſee 10 or 20 plants growing, you are ſure of finding ſeveral burrows under the ſhades of their broad-ſpreading leaves. Perhaps they may ſometimes eat the leaves and roots of this plant; however, it is probable the manure they leave about the roots contributes not a little to its increaſe; and their caſting up the earth, makes it ſhoot out young buds and multiply. This plant does not run, and ſpread itſelf, like docks and others of the ſame ſpecies; but grows in tufts, at uncertain diſtances, as if the ſeeds had been dropped with deſign. It appears that the Mongals never accounted it worth cultivating; but that the world is obliged to the marmots for the quantities ſcattered, at random, in many parts of this country: for whatever part of the ripe ſeed happens to be blown among the thick graſs, can very ſeldom reach the ground, but muſt there wither and die; whereas, ſhould it fall among the looſe earth thrown up by the marmots, it immediately takes root, and produces a new plant.

After digging and gathering the rhubarb, the Mongals cut the large roots into ſmall pieces, in order to make them dry more readily. In the middle of every piece they ſcoop a hole, through which a cord is drawn, in order to ſuſpend them in any convenient place. They hang them for the moſt part about their tents, and ſometimes on the horns of their ſheep. This is a moſt pernicious cuſtom, as it deſtroys ſome of the beſt part of the root: for all about the hole is rotten and uſeleſs; whereas, were people rightly informed how to dig and dry this plant, there would not be one pound of refuſe in an hundred; which would ſave a great deal of trouble and expence, that much diminiſh the profits on this commodity. At preſent, the dealers in this article think theſe improvements not worthy of their attention, as their gains are more conſiderable on this than on any other branch of trade. Perhaps the government may hereafter think it proper to make ſome regulations with regard to this matter.

Two ſorts of rhubarb are met with in the ſhops. The firſt is imported from Turkey and Ruſſia, in roundiſh pieces freed from the bark, with a hole through the middle of each: they are externally of a yellowiſh colour, and on cutting appear variegated with lively reddiſh ſtreaks. The other, which is leſs eſteemed, comes immediately from the Eaſt Indies, in longiſh pieces, harder, heavier, and more compact than the foregoing. The firſt ſort, unleſs kept very dry, is apt to grow mouldy and worm-eaten; the ſecond is leſs ſubject to theſe inconveniences. Some of the more induſtrious artiſts are ſaid to fill up the worm-holes with certain mixtures, and to colour the outſide of the damaged pieces with powder of the finer ſorts of rhubarb, and ſometimes with cheaper materials: this is often ſo nicely done, as effectually to impoſe upon the buyer, unleſs he very carefully examines each piece. The marks of good rhubarb are, that it be firm and ſolid, but not flinty; that it be eaſily pulverable, and appear, when powdered, of a fine bright yellow colour; that, upon being chewed, it impart to the ſpittle a ſaffron tinge, without proving ſlimy or mucilaginous in the mouth. Its taſte is ſubacrid, bitteriſh, and ſomewhat aſtringent; the ſmell lightly aromatic.

Rhubarb is a mild cathartic, which operates without violence or irritation, and may be given with ſafety even to pregnant women and children. Beſides its purgative quality, it is celebrated for an aſtringent one, by which it ſtrengthens the tone of the ſtomach and inteſtines, and proves uſeful in diarrhœas and diſorders proceeding from a laxity of the fibres. Rhubarb in ſubſtance operates more powerfully as a cathartic than any of the preparations of it. Watery tinctures purge more than the ſpirituous ones; whilſt the latter contain in greater perfection the aromatic, aſtringent, and corroborating virtues of the rhubarb. The doſe, when intended as a purgative, is from a ſcruple to a dram or more.

The Turkey rhubarb is, among us, univerſally preferred to the Eaſt India ſort, though this laſt is for ſome purpoſes at leaſt equal to the other; it is manifeſtly more aſtringent, but has ſomewhat leſs of an aromatic flavour. Tinctures drawn from both with rectified ſpirit have nearly the ſame taſte: on diſtilling

Rheum. off the menſtruum, the extract left from the tincture of the Eaſt India rhubarb proved conſiderably the ſtrongeſt.

Rhubarb has been cultivated of late in this country with conſiderable ſucceſs, and for medical purpoſes is found to equal that of foreign growth, as is proved by the Tranſactions of the London Society for encouraging Arts, Manufactures, and Commerce, who have rewarded ſeveral perſons both for cultivating and curing it. In the Tranſactions for 1792, the gold medal was adjudged to Sir William Fordyce, for raiſing from ſeed in the year 1791 upwards of 300 plants of the true rhubarb, or rheum palmatum of the London Pharmacopœia 1788, which in the ſecond and third weeks of October were tranſplanted into a deep loam, at four feet diſtance from each other, according to rules laid down by the ſociety. In 1793 it was adjudged to Mr Thomas Jones, from whoſe papers we derive the following information.

After giving an accurate account of his experiments and obſervations, he concludes, that the ſeaſon for ſowing is the ſpring about March or April, or in autumn about Auguſt and September; that thoſe plants which are raiſed in the ſpring ſhould be tranſplanted in autumn, and *vice verſa*; that they cannot have too much room; that room and time are eſſentially neceſſary to their being large, of a good appearance, and perhaps to the increaſe of their purgative qualities; that to effect theſe purpoſes, the ſoil muſt be light, loamy, and rich, but not too much ſo, left the roots ſhould be too fibrous; that their ſituation can ſcarcely be too dry, as more evils are to be expected from a ſuperabundancy of moiſture than any actual want of it: and laſtly, we may conclude, that in particular the injuries which they are ſubject to are principally during their infancy, and to be imputed to inſects and inattention to the planting ſeaſon; afterwards, from too great an expoſure to froſt: but that none can be dreaded from heat; and that in general they are hardy and eaſy of cultivation, when arrived beyond a certain term.

The method of curing rhubarb, as propoſed by Dr Tirruogel of Stockholm, is as follows: "No roots ſhould be taken up till they have been planted ten years: they ſhould be taken out of the ground either in winter, before the froſt ſets in, or in the beginning of ſpring, and immediately cut into pieces, and carefully barked; let them be ſpread upon a table for three or four days, and be frequently turned, that the juices may thicken or condenſe within the roots. After this proceſs, make a hole in each piece, and put a thread through it; by which let them hang ſeparately, either within doors, or in ſome ſheltered ſhady ſhed. Some perſons dry them in a different way: they incloſe the roots in clay, and make a hole in the clay, about the thickneſs of a gooſe-quill, and in this manner hang up each piece to dry ſeparately, that the moiſture may not evaporate, nor the ſtrength of the root be weakened. But the methods which the Tartars follow is a bad one: they dig the roots out of the deſerts where they grow, bark them, and immediately ſtring them, and hang them round the necks of their camels, that they may dry as they travel; but this greatly leſſens the medicinal virtue of the root."

Mr Thomas Halley of Pontefract in Yorkſhire, to whom the London Society voted the ſilver medal in 1793, informs us, that his father tried various experiments for curing rhubarb, as waſhing, bruſhing, barking, and peeling, and he dried them in the ſun, on a kiln, in a ſtove, or in a warm kitchen. But of the ſucceſs of all or either of theſe methods we have no account, owing to the death of Mr Halley's father. He ſent, however, to them five different ſpecimens, which the Society acknowledges to be ſuperior to any rhubarb hitherto cured in England, and produced to them. The roots ſent, Mr Halley ſays, were planted about the year 1781 in a light ſandyiſh ſoil, but were much neglected. They were taken up in the ſpring of 1792, and being thoroughly diveſted of the adhering earth, were placed for ſome weeks on the floor of a cool warehouſe: the fibres were then taken off, cut up, and dried on the flue of a green-houſe; but, from miſmanagement, were entirely ſpoiled. The prime roots were ſevered in ſmall pieces, peeled clean, and thoroughly cleared of every particle of unſoundneſs. Part was ſeparately laid in ſieves, and the remainder perforated, ſtrung, and ſuſpended in feſtoons from the cieling of a warm kitchen. The manner of dreſſing conſiſts in paring off the external coat with a ſharp knife, as thin and clean as poſſible, and then finiſhing it off by a piece of fiſh-ſkin, with its own powder; which powder may be procured from the chips and ſmall pieces, either by grinding or pounding it in a large mortar.

In the year 1794 the Society adjudged the gold medal to Mr William Hayward of Hanbury, Oxfordſhire, for propagating rhubarb by offsets taken from the crowns of large plants, inſtead of ſeeds, for the purpoſe of bringing it to perfection in a ſhorter time, which fully anſwered his expectations. Mr Hayward was a candidate in the year 1789 for the gold medal; but having miſunderſtood their rules, he was not entitled to it, though with great propriety they voted to him the ſilver medal; in conſequence of which he ſent them his method of culture and cure. His method of cultivating Turkey rhubarb from ſeed is thus explained to the Society: "I have uſually ſown the ſeed about the beginning of February, on a bed of good ſoil (if rather ſandy the better), expoſed to an eaſt or weſt aſpect, in preference to the ſouth; obſerving a full ſun to be prejudicial to the vegetation of the ſeeds, and to the plants whilſt young. The ſeeds are beſt ſown moderately thick (broad-caſt), treading them regularly in, as is uſual with parſneps and other light ſeeds, and then raking the ground ſmooth. I have ſometimes, when the ſeaſon has been wet, made a bed for ſowing the rhubarb ſeeds upon, about two feet thick, with new dung from the ſtable, covering it near one foot thick with good ſoil. The intent of this bed is not for the ſake of warmth, but ſolely to prevent the riſing of earthworms, which, in a moiſt ſeaſon, will frequently deſtroy the young crop. If the ſeed is good, the plants often riſe too thick; if ſo, when they have attained ſix leaves they ſhould be taken carefully up (where too cloſe), leaving the ſtanding crop eight or ten inches apart: thoſe taken up may be planted at the ſame diſtance, in a freſh ſpot of ground, in order to furniſh other plantations. When the plants in general are grown to the ſize that cabbage-plants are uſually ſet out for a ſtanding crop, they are beſt planted where they are to remain, in beds four feet wide, one row along the middle of the bed, leaving two yards diſtance betwixt the plants,

plants, allowing an alley between the beds about a foot wide, for conveniency of weeding the plants. In the autumn, when the decayed leaves are removed, if the shoveling of the alleys are thrown over the crowns of the plants, it will be found of service.

His mode of cultivating the same plant by offsets is thus given: "On taking up some plants the last spring, I slipped off several offsets from the heads of large plants: these I set with a dibble about a foot apart, in order, if I found them thrive, to remove them into other beds. On examining them in the autumn, I was surprised to see the progress they had made, and pleased to be able to furnish my beds with 40 plants in the most thriving state. Though this was my first experiment of its kind, I do not mean to arrogate the discovery to myself, having known it recently tried by others, but without being informed of their success. I have reason to think this valuable drug will, by this method, be brought much sooner to perfection than from seed."

His method of curing rhubarb is thus described: "The plants may be taken up either early in the spring, or in autumn, when the leaves are decayed, in dry weather if possible, when the roots are to be cleared from dirt (without washing): let them be cut into pieces, and with a sharp knife freed from the outer coat, and exposed to the sun and air for a few days, to render the outside a little dry. In order to accelerate the curing of the largest pieces, a hole may be scooped out with a penknife: these and the smaller parts are then to be strung on packthread, and hung up in a warm room (I have always had the conveniency of such a one over a baker's oven), where it is to remain till perfectly dry. Each piece may be rendered more sightly by a common file, fixing it in a small vice during that operation: afterwards rub over it a very fine powder, which the small roots furnish in beautiful perfection, for this and every other purpose where rhubarb is required."

In the year 1794, too, the Society adjudged the gold medal to Mr Ball for his method of curing the true rhubarb, which is as follows: "I take the roots up when I find the stalks withering or dying away, clean them from the earth with a dry brush, cut them in small pieces of about four or five inches in breadth, and about two in depth, taking away all the bark, and make a hole in the middle, and string them on packthread, keeping every piece apart; and every morning, if the weather is clear and fine, I place them in the open part of the garden, on stages, erected by fixing small posts about six feet high in the ground, and six feet asunder, into which I fix horizontal pegs, about a foot apart, beginning at the top; and the rhubarb being stringed crosswise on small poles, I place them on these pegs; so that if it should rain, I could easily remove each pole with the suspended pieces, into any covered place. I never suffer them to be out at night, as the damps at this season would be apt to mould them; and if at any time I perceive the least mark of mould, I rub it off with a dry cloth. In some of the pieces of rhubarb which I have cured this year, I have made holes about half an inch diameter in the middle, for the free passage of air, and have found that every one of these pieces dried better than the others where no such holes were made; and have likewise hung several strings in the kitchen, and never exposed them in the open air, and found them to dry exceedingly well, and much better than those in the open air. Some years since I dried a quantity of rhubarb on a malt-kiln, keeping up the thermometer to 80 degrees, which answered well, but I think rather dried too quick: the roots which I have cured this year are a part of the plantation of 1789, and for which the Society was so kind as to give me a medal (A)."

RHEXIA, in botany: A genus of the monogynia order, belonging to the octandria class of plants; and in the natural method ranking with those of the 17th order, *Calycanthemæ*. The calyx is quadrifid, with four petals inserted into it; the antheræ are declining; the capsule is quadrilocular, within the belly of the calyx.

RHINANTHUS, in botany: A genus of the angiospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 40th order, *Personatæ*. The calyx is quadrifid, and ventricose; the capsule bilocular, obtuse, and compressed.

RHINE, a large river of Germany, famous both in ancient and modern history. It rises among the Alpes Lepontiæ, or Grisons; and first traversing the Lacus Acronius, divides the Rhæti and Vindelici from the Helvetii, and then the Germans from the Gauls and Belgæ; and running from south to north for the greatest part of its way, and at length bending its course west, it empties itself at several mouths (Cæsar); at three mouths into the German ocean, (Pliny); viz. the western, or Helius; the northern, or Fleuvus; and the middle between both these, which retains the original name, *Rhenus*: and in this Ptolemy agrees.—Mela and Tacitus mention two channels, and as many mouths, the right and left; the former running by Germany, and the latter by Gallia Belgica: and thus also Asinius Pollio, and Virgil; the cut or trench of Drusus not being made in their time, whereby the middle channel was much drained and reduced, and therefore overlooked by Tacitus and Mela; and which Pliny calls the *Scanty*. To account for Cæsar's several mouths, is a matter of no small difficulty with the commentators; and they do it no otherwise than by admitting that the Rhine naturally formed small drains or rivulets from itself; the cut of Drusus being long posterior to him; in whose time Asinius Pollio, quoted by Strabo, who agrees with him therein, affirmed that there were but two mouths, finding fault with those who made them more: and he must mean the larger mouths, which emitted larger streams. The Romans, especially the poets, used the term *Rhenus* for *Germany*, (Martial).—At present, the river, after entering the Netherlands at Schenkinhaus, is divided into several channels, the two largest of which obtain the names of the *Lech* and the *Waal*, which running thro' the United Provinces, falls into the German ocean below Rotterdam.

(A) The Society also adjudged to Mr Ball the medal in 1790, for cultivating rhubarb.

Rhine || Rhinegau.

Lower Circle of the Rhine, consists of the palatinate of the Rhine, and the three ecclesiastical electorates, viz. those of Cologne, Mentz, and Triers.

Upper Circle of the Rhine, consisted of the landgraviates of Alsace and Hesse, comprehending the Wetterau; but now only Hesse can be accounted a part of Germany, Alsace being long ago united to France.

RHINEBERG, a town of Germany, in the circle of the Lower Rhine, and diocese of Cologne. It was in the possession of the French, but restored to the archbishop of Cologne by the treaty of Utrecht. It is seated on the Rhine, in E. Long. 6. 39. N. Lat. 51. 30.

RHINECK, a town of Germany, in the archbishopric of Cologne, seated on the Rhine, E. Long. 7. 23. N. Lat. 50. 27.—There is another town of the same name in Switzerland, capital of Rhinthal, seated on the Rhine, near the lake of Constance, with a good castle. E. Long. 9. 53. N. Lat. 47. 38,

RHINFELD, a small but strong town of Germany, in the circle of Suabia, and the best of the four forest towns belonging to the house of Austria. It has been often taken and retaken in the German wars; and is seated on the Rhine, over which there is a handsome bridge. E. Long. 7. 53. N. Lat. 47. 40.

RHINEGAU, a beautiful district of the electorate of Mentz, is situated on the Rhine, about three miles from the city of Mentz, and is so populous that it looks like one entire town intermixed with gardens and vineyards. The Rhine here grows astonishingly wide, and forms a kind of sea, near a mile broad, in which are several well wooded little islands. The Rhinegau forms an amphitheatre, the beauties of which are beyond all description. At Walluf, the very high hills come nearly down to the river side; from thence they recede again into the country, forming a kind of half circle, the other end of which is 15 miles off at Rüdesheim, on the banks of the Rhine. The banks of the river, the hills which form the circles, and the slopes of the great mountains, are thick sown with villages and hamlets. The white appearance of the buildings, and the fine-blue slated roofs of the houses playing amidst the various green of the landscape, have an admirable effect. In the space of every mile, as you sail down the river, you meet with a village which in any other place would pass for a town. Many of the villages contain from 300 to 400 families; and there are 36 of them in a space of 15 miles long and six miles broad, which is the width of this beautiful amphitheatre. The declivities of all the hills and mountains are planted thick with vineyards and fruit trees, and the thick wooded tops of the hills cast a gloomy horror over the otherwise cheerful landscape. Every now and then a row of rugged hills run directly down to the shore, and domineer majestically over the lesser hills under them. On one of these great mountains, just about the middle of the Rhinegau, you meet with *Johannis-Berg*, a village which produces some of the best Rhenish. Before this village is a pretty little rising, and near the banks of the river there is a very fine old castle, which gives unspeakable majesty to the whole landscape. Indeed, in every village, you meet with some or other large building, which contributes very much to the decoration of the whole. This country is indebted for its riches to this sheltering hill, which protects it from the cold winds of the east and north, at the same time that it leaves room enough for the sun to exercise his benign influences. The groves and higher slopes of the hills make excellent pastures, and produce large quantities of dung, which, in a country of this sort, is of inestimable value.

Richard's Travels through Germany, iii. 226.

The bank of the Rhine, opposite to the Rhinegau, is exceedingly barren, and heightens the beauty of the prospect on the other side by the contrast it exhibits; on this side, you hardly meet above three or four villages, and these are far distant from each other. The great interval between them is occupied by heaths and meadows, only here and there a thick bush affords some shade, and a few corn fields among the villages enliven the gloomy landscape. The back ground of this country is the most picturesque part of it. It is formed by a narrow gullet of mountains, which diminish in perspective between Rudesheim and Bingen. Perpendicular mountains and rocks hang over the Rhine in this place, and seem to make it the dominion of eternal night. At a distance, the Rhine seems to come out of this landscape through a hole under ground; and it appears to run tediously, in order to enjoy its course through a pleasant country the longer. Amidst the darkness which covers this back ground, the celebrated Mouse tower seems to swim upon the river. In a word, there is not any thing in this whole tract that does not contribute something to the beauty and magnificence of the whole; or, if I may be permitted the expression, to make the paradise more welcome. As you sail along the Rhine, between Mentz and Bingen, the banks of the river form an oval amphitheatre, which makes one of the richest and most picturesque landscapes to be seen in Europe. The inhabitants of these regions are some of them extremely rich, and some extremely poor. The happy middle state is not for countries the chief product of which is wine; for, besides that the cultivation of the vineyard is infinitely more troublesome and expensive than agriculture, it is subjected to revolutions, which in an instant reduce the holder of land to the condition of a day-labourer. It is a great misfortune for this country, that, though restrained by law, the nobility are, through connivance of the Elector, allowed to purchase as much land as they please. The peasant generally begins by running in debt for his vineyard; so that if it does not turn out well, he is reduced to day-labour, and the rich man extends his possessions to the great detriment of the country. There are several peasants here, who having incomes of 30, 50, or 100,000 guilders a-year, have laid aside the peasant, and assumed the wine-merchant; but, splendid as their situation is, it does not compensate, in the eyes of the humane man, for the sight of so many poor people with which the villages swarm. In order to render a country of this kind prosperous, the state should appropriate a fund to the purpose of maintaining the peasant in bad years, and giving him the assistance which his necessities, and his want of ready money, may from time to time make convenient.

The inhabitants of the Rhinegau are a handsome and uncommonly strong race of men. You see at the very first aspect that their wine gives them merry hearts and sound bodies. They have a great deal of natural wit, and a vivacity and jocoseness, which distinguishes them

very much from their neighbours. You need only compare them with some of these, to be convinced that the drinker of wine excels the drinker of beer and water, both in body and mind, and that the inhabitant of the south is much stouter than he who lives in the north; for though the wine drinker may not have quite as much flesh as he who drinks only beer, he has better blood, and can bear much more work. Tacitus had already observed this, in his treatise *De moribus Germanorum*. "The large and corpulent bodies of the Germans (says he) have a great appearance, but are not made to last." At that time almost all the Germans drank only water; but the mere drinking of wine has effected a revolution in several parts of Germany, which makes the present inhabitants of these countries very different from those described by Tacitus. Black and brown hair is much commoner here than the white, which made the Germans so famous in old Rome. "It will be easily imagined (says Baron Reisbeck), that the monks fare particularly well in so rich a country. We made a visit to the prelate of Erbach. These lordly monks, for so in every respect they are, have an excellent hunt, rooms magnificently furnished, billiard tables, half a dozen beautiful singing women, and a stupendous wine cellar, the well ranged batteries of which made me shudder. A monk, who saw my astonishment at the number of the casks, assured me, that, without the benign influence which flowed from them, it would be totally impossible for the cloister to subsist in so damp a situation."

RHINFELS, a castle of Germany, in the circle of the Lower Rhine, in a county of the same name. It is looked upon as one of the most important places seated on the Rhine, as well in regard to its strength as situation. It is near St Goar, and built on a craggy rock. This fortress commands the whole breadth of the Rhine, and those who pass are always obliged to pay a considerable toll. In the time of war it is of great importance to be masters of this place. E. Long. 7. 43. N. Lat. 50. 3.

RHINLAND, a name given to a part of South Holland, which lies on both sides the Rhine, and of which Leyden is the capital town.

RHINOCEROS, in zoology, a genus of quadrupeds belonging to the order of belluæ. The name is entirely Greek; but these animals were totally unknown to the ancient Greeks. Aristotle takes no notice of them, nor any other Greek writer till Strabo, nor Roman till Pliny. It is probable they did not frequent that part of India into which Alexander had penetrated, since it was near 300 years after that Pompey brought them to Europe. From this time till the days of Heliogabalus, the rhinoceros was frequently exhibited in the Roman spectacles; and he has often been transported into Europe in more modern times; but they were long very ill represented, and very imperfectly described, till some that arrived in London in 1739 and 1741 were inspected, by which the errors and caprices of former writers were detected.

There are two species of rhinoceros, the first of which is the *unicorni*, the length of which, Buffon tells us, from the extremity of the muzzle to the origin of the tail, is at least 12 feet, and the circumference of the body is nearly the same. "The rhinoceros which came to London in the year 1739 was sent from Bengal. Though not above two years of age, the expence of his food and journey amounted to near L. 1[illegible] Sterling. He was fed with rice, sugar, and hay. He had daily seven pounds of rice, mixed with three pounds of sugar, and divided into three portions. He had likewise hay and green herbs, which last he preferred to hay. His drink was water, of which he took large quantities at a time (x). He was of a peaceable disposition, and allowed all parts of his body to be touched. When hungry, or struck by any person, he became mischievous, and in both cases nothing appeased him but food. When enraged, he sprung forward, and nimbly raised himself to a great height, pushing at the same time his head furiously against the walls, which he performed with amazing quickness, notwithstanding his heavy aspect and unwieldy mass. I often observed, says Dr Parsons, these movements produced by rage or impatience, especially in the mornings before his rice and sugar were brought to him. The vivacity and promptitude of his movements, Dr Parsons adds, led me to think, that he is altogether unconquerable, and that he could easily overtake any man who should offend him.

Plate CCCXXVIII. Fig. 1, 2, 3, 4. History, p. 72, &c.

"This rhinoceros, at the age of two years, was not taller than a young cow that has never produced. But his body was very long and very thick. His head was disproportionally large. From the ears to the horn there is a concavity, the two extremities of which, namely the upper end of the muzzle, and the part near the ears, are considerably raised. The horn, which was not yet above an inch high, was black, smooth at the top, but full of wrinkles directed backward at the base. The nostrils are situated very low, being not above an inch distant from the opening of the mouth. The under lip is pretty similar to that of the ox; but the upper lip has a greater resemblance to that of the horse, with this advantageous difference, that the rhinoceros can lengthen this lip, move it from side to side, roll it about a staff, and seize with it any object he wishes to carry to his mouth. The tongue of this young rhinoceros was soft, like that of a calf. His eyes had no vivacity: In figure they resembled those of the hog, and were situated lower, or nearer the nostrils, than in any other quadruped. His ears are large, thin at the extremities, and contracted at their origin by a kind of annular rugosity. The neck is very short, and surrounded with two large folds of skin. The shoulders are very thick, and at their juncture there is another fold of skin, which descends upon the fore legs. The body of this young rhinoceros was very thick, and pretty much resembled that of a cow about to bring forth. Between the body and crupper there is another fold, which descends upon the hind legs. Lastly, another fold transversely surrounds the inferior part of the crupper, at some distance from the tail. The belly was large, and hung near the ground, particularly its middle part. The legs are round, thick, strong, and

(x) "Their food in a state of nature is the grossest herbs, as thistles and thorny shrubs, which they prefer to the soft pasture of the best meadows; they are fond of the sugar cane, and eat all kinds of grain, but for flesh they have no appetite."

Rhinoceros. their joint bended backwards. This joint, which, when the animal lies, is covered with a remarkable fold of the skin, appears when he stands. The tail is thin, and proportionably short; that of the rhinoceros so often mentioned, exceeded not 16 or 17 inches in length. It turns a little thicker at the extremity, which is garnished with some short, thick, hard hairs. The form of the penis is very extraordinary. It is contained in a prepuce or sheath like that of the horse; and the first thing that appears in the time of erection is a second prepuce, of a flesh-colour, from which there issues a hollow tube, in the form of a funnel cut and bordered somewhat like a flower-de luce, and constitutes the glans and extremity of the penis. This anomalous glans is of a paler flesh-colour than the second prepuce. In the most vigorous erection, the penis extends not above eight inches out of the body; and it is easily procured by rubbing the animal with a handful of straw when he lies at his ease. The direction of this organ is not straight, but bended backward. Hence he throws out his urine behind; and from this circumstance, it may be inferred that the male covers not the female, but that they unite with their cruppers to each other. The female organs are situated like those of the cow; and she exactly resembles the male in figure and grossness of body. The skin is so thick and impenetrable, that when a man lays hold of any of the folds, he would imagine he is touching a wooden plank of half an inch thick (B). When tanned, Dr Grew remarks, it is excessively hard, and thicker than the hide of any other terrestrial animal. It is everywhere covered more or less with incrustations in the form of galls or tuberosities, which are pretty small on the top of the neck and back, but become larger on the sides. The largest are on the shoulders and crupper, are still pretty large on the thighs and legs, upon which they are spread all round, and even on the feet. But between the folds the skin is penetrable, delicate, and as soft to the touch as silk, while the external part of the fold is equally hard with the rest. This tender skin between the folds is of a light flesh-colour; and the skin of the belly is nearly of the same colour and consistence. These galls or tuberosities should not be compared, as some authors have done, to scales. They are only simple indurations of the skin, without any regularity in their figure or symmetry in their respective positions. The flexibility of the skin in the folds enables the rhinoceros to move with facility his head, neck, and members. The whole body, except at the joints, is inflexible, and resembles a coat of mail. Dr Parsons remarks, that this animal listened with a deep and long continued attention to any kind of noise; and that, though he was sleeping, eating, or obeying any other pressing demands of nature, he raised his head, and listened till the noise ceased."

These animals never assemble or march together in troops like elephants. Being of a more solitary and savage disposition, they are more difficult to hunt and to overcome. They never attack men, however, except when they are provoked, when they are very furious and formidable; but as they see only before them, and not very sharply, and as they turn with great difficulty, they may be easily avoided. The skin of these animals is so extremely hard as to resist sabres, lances, javelins, and even musket balls, the only penetrable parts being the belly, the eyes, and about the ears. Hence the hunters generally attack them when they lie down to sleep.—Their flesh is considered as excellent by the Indians and Africans, but especially by the Hottentots; and if they were trained when young, they might be rendered domestic, in which case they would multiply more easily than the elephant. They inhabit Bengal, Siam, Colchin-China, Quangsi in China, the isles of Java and Sumatra, Congo, Angola, Ethiopia, and the country as low as the Cape. They love shady forests, the neighbourhood of rivers, and marshy places. They wallow in the mire like hogs, and are said by that means to give shelter in the folds of their skins to scorpions, centipedes, and other insects. This is denied by Buffon and Edwards, though the surgeon of the Shaftesbury had observed in a rhinoceros, newly taken after having weltered in the mud, several insects concealed under the ply of the skin. This carries with it every appearance of probability; for as the creature welters in mud, it is impossible for it to do so without bringing up with it some of the insects which live in that mud; and when this is the case, it surely cannot be unnatural to suppose that they would shelter themselves under the plaits of the skin. Mr Bruce had an opportunity of examining the skin of a rhinoceros before his muddy covering had been scraped off, and saw under it several very large worms, but not of the carnivorous kind. He saw likewise several smaller animals resembling ear-wigs, which he took to be young scolopendræ; and, though he searched no farther, we must certainly consider this as a proof of what the surgeon of the Shaftesbury related. Mr Bruce supposes, too, that they welter in mire, partly in order to screen themselves by a case of mud from the attacks of that mischievous fly which infests the animals of Abyssinia to such a degree. "The time of the fly (says he) being in the rainy season, the whole black earth turns into mire. In the night, when the fly is at rest, the rhinoceros chooses a convenient place, and there, rolling himself in the mud, he clothes himself with a kind of case, which defends him against his enemy the following day. The wrinkles and plaits of his skin serve to keep this muddy plaster firm upon him, all but about his hips, shoulders, and legs, where it cracks and falls off by motion, and leaves him exposed in those places to the attacks of the fly. The itching and pain which follow occasion him to rub himself in those parts against the roughest trees; and this is at least one cause of the pustules or tubercles which we see upon these places, both on the elephant and rhinoceros." They bring forth only one young at a time, about which they are very solicitous. They are said to consort with tygers; a story founded merely on their common attachment to the sides of rivers, by which means they are often found near each other. Their skin, flesh, hoofs, teeth, and even dung, are used in India medicinally. The horn, especially that of a virgin rhinoceros, is considered as an antidote against poison. Every horn,

(B) This Mr Bruce denies to be the case, and suspects, where it does occur, that it is the effect of disease, or of a different habit acquired by keeping. In their natural state, he thinks they prevent this rigidity by wallowing in the mud.

horn, however, has not this property; some of them selling very cheap, while others are extremely dear.

Some writers are of opinion, that the rhinoceros is the unicorn of holy writ and of the ancients, and that the oryx or Indian ass of Aristotle, who says it has but one horn, was the same, his informers comparing the clumsy shape of the rhinoceros to that of the ass.—It was also the *bos unicornis* and *fera monoceros* of Pliny, both of which were of India; and in his account of the monoceros he exactly describes the great black horn and hog-like tail. The unicorn of Scripture is considered as having all the properties of the rhinoceros, as rage, untameableness, great swiftness, and vast strength. This opinion is most ably supported by Mr Bruce. "The derivation of the Hebrew word *reem* (says he), which in our version is translated *unicorn*, both in the Hebrew and the Ethiopic, seems to be from erectness, or standing straight. This is certainly no particular quality in the animal itself, who is not more or even so much erect as many other quadrupeds, for in its knees it is rather crooked; but it is from the circumstance and manner in which its horn is placed. The horns of all other animals are inclined to some degree of parallelism with his nose or os frontis. The horn of the rhinoceros is erect and perpendicular to this bone, on which it stands at right angles, thereby possessing a greater purchase or power, as a lever, than an horn could possibly have in any other position. The situation of the horn is very happily alluded to in Scripture; 'My horn shalt thou exalt like the horn of an unicorn.' And the horn here alluded to is not wholly figurative, but was really an ornament worn by great men in the days of victory, preferment, or rejoicing, when they were anointed with new, sweet, or fresh oil; a circumstance which David joins with that of erecting the horn.

"Some authors, for what reason I know not, have made the reem, or unicorn, to be of the deer or antelope kind; that is, of a genus whose very character is fear and weakness, directly opposite to the qualities by which the reem is described in Scripture: besides, it is plain that the reem is not of the class of clean quadrupeds; and a late modern traveller very whimsically takes him for the leviathan, which certainly was a fish. Balaam, a priest of Midian, and so in the neighbourhood of the haunts of the rhinoceros, and intimately connected with Ethiopia, (for they themselves were shepherds of that country), in a transport, from contemplating the strength of Israel, whom he was brought to curse, says, they had, as it were, the strength of the reem. Job makes frequent allusion to his great strength, ferocity, and indocility. He asks, 'Will the reem be willing to serve thee, or abide by thy crib?' that is, Will he willingly come into thy stable, and eat at thy manger? And again, 'Canst thou bind the reem with a band in the furrow; and will he harrow the valleys for thee?'—In other words, Canst thou make him go to the plough or harrows?

"The rhinoceros, in Geez, is called *Arwe Harich*, and in the Amharic *Auraris*; both which names signify 'the large wild beast with the horn.' This would seem as if applied to the species with one horn. On the other hand, in the country of the Shangalla and in Nubia he is called *Cirnamgirn*, or 'horn upon horn;' and this would seem to denote that he had two. The Ethiopic text renders the word *reem*, 'Arwe-Harich;' and this the Septuagint translates *monoceros*, or *unicorn*. The principal reason of translating the word *unicorn* rather than *rhinoceros*, is from a prejudice that he must have had but one horn. But this is by no means so well founded as to be admitted the only argument for establishing the existence of an animal, which never has appeared after the search of so many ages. Scripture speaks of the horns of the unicorn; so that even from this circumstance the reem may be the rhinoceros, as the Asiatic, and part of the African rhinoceros, may be the unicorn."

The rhinoceros bicornis was long known in Europe merely by the double horns which were preserved in various cabinets; and its existence, though now past all doubt, has been frequently questioned. Dr Sparman, in his voyage to the Cape of Good Hope, killed two of these animals, which he dissected, and very minutely describes. The horns, he says, in the live animal are so mobile and loose, that when it walks carelessly along, one may see them waggle about, and hear them beth and clatter against each other. In the Phil. Trans. for 1793, we have a description of the double-horned rhinoceros of Sumatra, by Mr Bell, surgeon in the service of the East India Company at Bencoolen; and this account, though it differs considerably from that of Sparman in some particulars, we shall insert here. "The animal (says Mr Bell) herein described was shot with a leaden ball from a musket about ten miles from Fort Marlborough. I saw it the day after; it was then not in the least putrid, and I put it into the position from which the accompanying drawing was made. (See Plate CCCCXXXVIII.) It was a male; the height at the shoulder was 4 feet 4 inches; at the sacrum nearly the same; from the tip of the nose to the end of the tail eight feet five inches.—From the appearance of its teeth and bones it was but young, and probably not near its full size. The shape of the animal was much like that of the hog. The general colour was a brownish ash; under the belly, between the legs and folds of the skin, a dirty flesh colour. The head much resembled that of the single horned rhinoceros; the eyes were small, of a brown colour; the *membrana nictitans* thick and strong: the skin surrounding the eyes was wrinkled; the nostrils were wide; the upper lip was pointed, and hanging over the under.

"There were six *molares*, or grinders, on each side of the upper and lower jaw, becoming gradually larger backward, particularly in the upper; two teeth in the front of each jaw; the tongue was quite smooth; the ears were small and pointed, lined and edged with short black hair, and situated like those of the single-horned rhinoceros. The horns were black, the larger was placed immediately above the nose, pointing upwards, and was bent a little back; it was about nine inches long. The small horn was four inches long, of a pyramidal shape, flattened a little, and placed above the eyes, rather a little more forward, standing in a line with the larger horn, immediately above it. They were both firmly attached to the skull, nor was there any appearance of joint or muscles to move them (c). The neck was thick and short, the skin on the under side thrown into

(c) Mr Bruce, however, says, that in the living animal the horns are extremely sensible. He informs us, that

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folds, and these folds again wrinkled. The body was bulky and round, and from the shoulder ran a fold, as in the Indian one-horned rhinoceros, though it was but slightly marked. There were several other folds and wrinkles on the body and legs; and the whole gave rather the appearance of armour: the legs were thick, short, and remarkably strong; the feet armed with three distinct hoofs, of a blackish colour, which surrounded half the foot, one in front, the others on each side.—The soles of the feet were convex, of a light colour, and the cuticle on them not thicker than that on the feet of a man who is used to walking; the testicles hardly appeared externally; the penis was bent backward, and opened about 18 inches below the anus. At its origin it was as thick as a man's leg, and about two feet and a half long; the bend in it occasions the urine to be discharged backwards. The glans is very singular; the opening of the urethra is like the mouth of a cup with its brim bending over a little; and is about three quarters of an inch in diameter; the glans here is about half an inch in diameter, and continues that thickness for an inch and a half: it is then inserted into another cup like the first, but three times as large; the glans afterwards gradually becomes thicker, and at about nine inches from the opening of the urethra are placed two bodies on the upper part of the glans, very like the nipples of a milch cow, and as large; these become turgid when the penis is erected; the whole of this is contained in the prepuce, and may be considered as glans. From the os pubis arises a strong muscle, which soon becomes tendinous: this tendon is continued along the back or upper part of the penis; it is flattened, is about the size of a man's little finger, and is inserted into the upper part of the glans, near the end. The use of this muscle is to straiten the penis. On the under side of the penis there are two muscles, antagonists to the above; they arise from the os ischium fleshy, run along the lower side of the penis, on each side of the corpus spongiosum, and are inserted fleshy into the lower side of the glans; the action of these muscles will draw in the penis, and bend it. The male has two nipples, like the female, situated between the hind legs; they are about half an inch in length, of a pyramidal form, rounded at the end.

"The whole skin of the animal is rough, and covered very thinly with short black hair. The skin was not more than one third of an inch in thickness at the strongest part; under the belly it was hardly a quarter of an inch; any part of it might be cut through with ease by a common dissecting knife. The animal had not that appearance of armour which is observed in the single-horned rhinoceros. Since I dissected the male, I have had an opportunity of examining a female, which was more of a lead colour: it was younger than the male, and had not so many folds or wrinkles in its skin; of course it had still less the appearance of armour. The only external mark which distinguishes it from the male is the vagina, which is close to the anus; whereas in the male the opening for the penis is 18 inches below the anus."

From the difference between this account and Sparrman's, which in some particulars is considerable, and from the difference of shape, we are disposed to think them varieties. Mr Bruce's drawing of the rhinoceros bicornis is unquestionably a deception; the body of the animal, as there represented, corresponds exactly with that of the unicornis except in its having two horns on its head. In the museum of the late Dr William Hunter, the two-horned animal was preserved, agreeing exactly with the general accounts and figures we have of that animal, but differing essentially from Mr Bruce's. For further particulars respecting these curious animals, see Buffon, vol. xi. p. 92—117; Sparrman's Voyage to the Cape, vol. ii. chap. 12.; and Bruce's Travels, vol. iv. p. 296, &c. and Appendix, p. 85, &c.

Rhinoceros-Bird. See BUCEROS.

RHIPYMNA. See REPTILIA.

RHIZOBALUS, in botany: A genus of the tetragynia order, belonging to the polyandria class of plants; and in the natural method ranking under the 23d order, *Tribilatæ*. The calyx monophyllous, fleshy, and downy; the corolla consists of five petals, which are round, concave, fleshy, and much larger than the calyx; the stamina are very numerous, filiform, and longer than the corolla; the styli are four, filiform, and of the length of the stamina; the pericarpium has four drupes, kidney-shaped, compressed with a fleshy substance inside, and in the middle a flat large nut containing a kidney shaped kernel. Of this there is only one species, viz. *Pekea*. The nut is sold in the shops as American nuts; they are flat, tuberculated, and kidney-shaped, containing a kernel of the same shape, which is sweet and agreeable. Clusius gives a good figure of the nut, and Aublet has one of the whole plant.

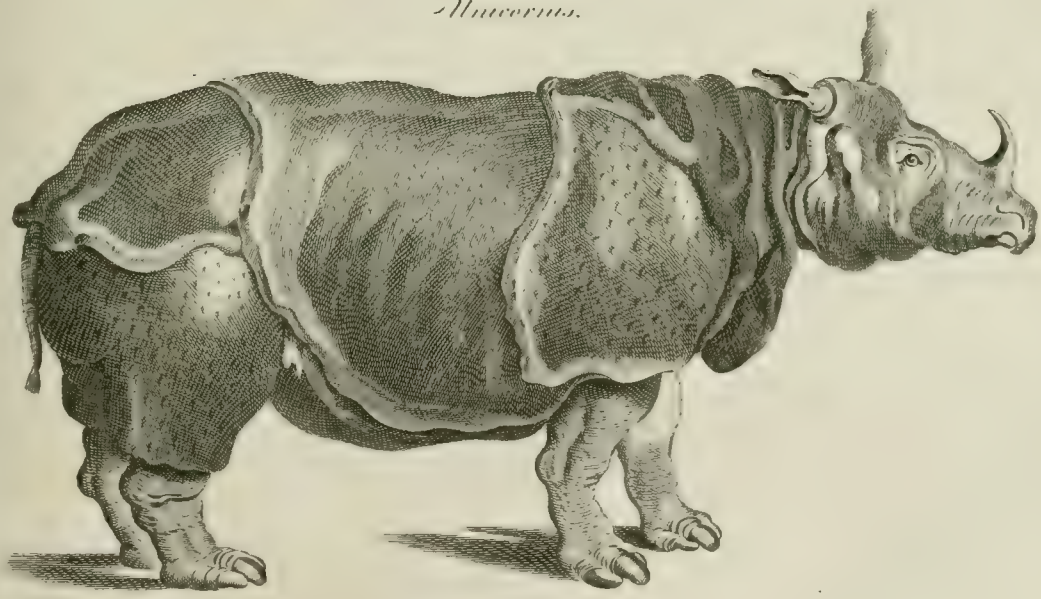
RHIZOPHORA, the MANGROVE, or *Mangle*, in botany: A genus of the monogynia order, belonging to the dodecandria class of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. The calyx is quadripartite, the corolla partite; there is one seed, very long, and carnous at the base. These plants are natives of the East and West Indies, and often grow 40 or 50 feet high. They grow only in water and on the banks of rivers, where the tide flows up twice a-day. They preserve the verdure of their leaves throughout the year. From the lowest branches issue long roots, which hang down to the water, and penetrate into the earth. In this position they resemble so many arcades, from five to ten feet high, which serve to support the body of the tree, and even to advance it daily into the bed of the water. These arcades are so closely intertwisted one with another, that they form a kind of natural and transparent terrace, raised with such solidity over the water, that one might walk upon them, were it not that the branches are too much encumbered with leaves. The most natural way of propagating these trees, is to foster the several slender small filaments which issue from the main branches to take root in the earth. The most common method, however, is that of laying the small lower branches in baskets of mould or earth till they have taken root.

The description just given pertains chiefly to a particular species of mangrove, termed by the West Indians

that once at a hunting match he saw the point of a rhinoceros's horn broken off by a musket-shot; the consequence of which was, that the creature was for a moment deprived of all appearance of life.

Rhinoceros Bicornis.

Unicornis.



A. Bell Prin. Val. Sculptor fecit.

dians *black mangles*, on account of the brown dusky colour of the wood. The bark is very brown, smooth, pliant when green, and generally used in the West India islands for tanning of leather. Below this bark lies a cuticle, or skin, which is lighter, thinner, and more tender. The wood is nearly of the same colour as the bark; hard, pliant, and very heavy. It is frequently used for fuel, for which purpose it is said to be remarkably proper: the fires which are made of this wood being both clearer, more ardent and durable than those made of any other materials whatever. The wood is compact; almost incorruptible; never splinters; is easily worked; and were it not for its enormous weight, would be commodiously employed in almost all kinds of work, as it possesses every property of good timber. To the roots and branches of mangroves that are immersed in the water, oysters frequently attach themselves; so that wherever this curious plant is found growing on the sea-shore, oyster-fishing is very easy; as in such cases these shell-fish may be literally said to be gathered upon trees.

The red mangle or mangrove grows on the sea-shore, and at the mouth of large rivers; but does not advance, like the former, into the water. It generally rises to the height of 20 or 30 feet, with crooked, knotty branches, which proceed from all parts of the trunk. The bark is slender, of a brown colour, and, when young, is smooth, and adheres very closely to the wood; but when old, appears quite cracked, and is easily detached from it. Under this bark is a skin as thick as parchment, red, and adhering closely to the wood, from which it cannot be detached till the tree is felled and dry. The wood is hard, compact, heavy, of a deep red, with a very fine grain. The pith or heart of the wood being cut into small pieces, and boiled in water, imparts a very beautiful red to the liquid, which communicates the same colour to wool and linen. The great weight and hardness of the wood prevents it from being generally used. From the fruit of this tree, which, when ripe, is of a violet colour, and resembles some grapes in taste, is prepared an agreeable liquor, much esteemed by the inhabitants of the Caribbee islands.

White mangle, so termed from the colour of its wood, grow, like the two former, upon the banks of rivers, but is seldom found near the sea. The bark is grey; the wood, as we have said, white, and when green, supple; but dries as soon as cut down, and becomes very light and brittle. This species is generally called *rope-mangrove*, from the use to which the bark is applied by the inhabitants of the West Indies. This bark, which, by reason of the great abundance of sap, is easily detached when green from the wood, is beaten or bruised betwixt two stones, until the hard and woody part is totally separated from that which is soft and tender. This last, which is the true cortical substance, is twisted into ropes of all sizes, which are exceedingly strong, and not apt to rot in the water.

RHODES, a celebrated island in the Archipelago, the largest and most easterly of the Cyclades, was known in ancient times by the names of *Asteria*, *Ophiusa*, *Ætherea*, *Trinacria*, *Corymbia*, *Peissa*, *Atlantia*, *Marcia*, *Oreessa*, *Stadia Tachinis*, *Pelagia*, and *Rhodus*. In later ages, the name of *Rhodus*, or *Rhodes*, prevailed, from the Greek word *rhodon*, as is commonly supposed, signifying a "rose;" the island abounding very much with these flowers. Others, however, give different etymologies, among which it is difficult to find one preferable to another. It is about 20 miles distant from the coasts of Lycia and Caria, and about 120 miles in compass. Rhodes.

Several ancient authors assert, that Rhodes was formerly covered by the sea, but gradually raised its head above the waves, and became an island. Delos and Rhodes (says Pliny), islands which have long been celebrated, sprung at first from the sea. The fact is supported by such a variety of other evidence as render it indubitable. Plato* attributes the event to the decrease of the waters of the ocean. If his conjecture be not without foundation, most of the isles of the Archipelago, being lower than Rhodes, must have had a similar origin. But it is much more probable that the volcanic fires, which in the fourth year of the 135th Olympiad, raised Therasia and Thera, known at present by the name of Santorin, from the depths of the sea, and have in our days thrown out several small islands adjacent, also produced in some ancient era Rhodes and Delos. 2 Its original.

* Plin. lib. 2 cap. 87.

* Plato's Timæus.

The first inhabitants of Rhodes, according to Diodorus Siculus, were called the *Telchinæ*, who came originally from the island of Crete. These, by their skill in astrology, perceiving that the island was soon to be drowned with water, left their habitations, and made room for the Heliades, or grandsons of Phœbus, who took possession of the island after that god had cleared it from the water and mud with which it was overwhelmed. These Heliades, it seems, excelled all other men in learning, and especially in astrology; invented navigation, &c. In after ages, however, being infested with great serpents which bred in the island, they had recourse to an oracle in Delos, which advised them to admit Phorbas, a Thessalian, with his followers, into Rhodes. This was accordingly done; and Phorbas having destroyed the serpents, was, after his death, honoured as a demigod. Afterwards a colony of Cretans settled in some part of the island, and a little before the Trojan war, Tlepolinius the son of Hercules, who was made king of the whole island, and governed with great justice and moderation. 3 First inhabitants.

After the Trojan war, all the ancient inhabitants were driven out by the Dorians, who continued to be masters of the island for many ages. The government was at first monarchical; but a little before the expedition of Xerxes into Greece, a republican form of government was introduced; during which the Rhodians applied themselves to navigation, and became very powerful by sea, planting several colonies in distant countries. In the time of the Peloponnesian war, the republic of Rhodes was rent into two factions, one of which favoured the Athenians, and another the Spartans; but at length the latter prevailing, democracy was abolished, and an aristocracy introduced. About 351 B. C. we find the Rhodians oppressed by Mausolus king of Caria, and at last reduced by Artemisia his widow. In this emergency, they applied to the Athenians; by whose assistance, probably, they regained their liberty. 4 Driven out by the Dorians.

From this time to that of Alexander the Great, the Rhodians enjoyed an uninterrupted tranquillity. To [illegible] him they voluntarily submitted; and were on that account [illegible] 5 Submit to [illegible] death.

Rhodes. count highly favoured by him: but no sooner did they hear of his death, than they drove out the Macedonian garrisons, and once more became a free people. About this time happened a dreadful inundation at Rhodes; which, being accompanied with violent storms of rain, and hailstones of an extraordinary bigness, beat down many houses, and killed great numbers of the inhabitants. As the city was built in the form of an amphitheatre, and no care had been taken to clear the pipes and conduits which conveyed the water into the sea, the lower parts of the city were in an instant laid under water, several houses quite covered, and the inhabitants drowned before they could get to the higher places. As the deluge increased, and the violent showers continued, some of the inhabitants made to their ships, and abandoned the place, while others miserably perished in the waters. But while the city was thus threatened with utter destruction, the wall on a sudden burst asunder, and the water discharging itself by a violent current into the sea, unexpectedly delivered the inhabitants from all danger.

6 Violent inundation at Rhodes.

The Rhodians suffered greatly by this unexpected accident, but soon retrieved their losses by a close application to trade. During the wars which took place among the successors of Alexander, the Rhodians observed a strict neutrality; by which means they enriched themselves so much, that Rhodes became one of the most opulent states of that age; insomuch that, for the common good of Greece, they undertook the *piratic war*, and, at their own charge, cleared the seas of the pirates who had for many years infested the coasts of Europe and Asia. However, notwithstanding the neutrality they professed, as the most advantageous branches of their commerce were derived from Egypt, they were more attached to Ptolemy, king of that country, than to any of the neighbouring princes. When therefore Antigonus, having engaged in a war with Ptolemy about the island of Cyprus, demanded succours of them, they earnestly intreated him not to compel them to declare war against their ancient friend and ally. But this answer, prudent as it was, drew upon them the displeasure of Antigonus, who immediately ordered one of his admirals to sail with his fleet to Rhodes, and seize all the ships that came out of the harbour for Egypt. The Rhodians, finding their harbour blocked up by the fleet of Antigonus, equipped a good number of galleys, fell upon the enemy, and obliged him, with the loss of many ships, to quit his station. Hereupon Antigonus, charging them as aggressors, and beginners of an unjust war, threatened to besiege their city with the strength of his whole army. The Rhodians endeavoured by frequent embassies to appease his wrath; but all their remonstrances served rather to provoke than allay his resentment: and the only terms upon which he would hearken to any accommodation were, that the Rhodians should declare war against Ptolemy, that they should admit his fleet into their harbour, and that an hundred of the chief citizens should be delivered up to him as hostages for the performance of these articles. The Rhodians sent ambassadors to all their allies, and to Ptolemy in particular, imploring their assistance, and representing to the latter, that their attachment to his interest had drawn upon them the danger to which they were exposed. The prepartions on both sides were immense. As Antigonus was near fourscore years of age at that time, he committed the whole management of the war to his son Demetrius, who appeared before the city of Rhodes with 200 ships of war, 170 transports having on board 40,000 men, and 1000 other vessels laden with provisions and all sorts of warlike engines. As Rhodes had enjoyed for many years a profound tranquillity, and been free from all devastations, the expectation of booty, in the plunder of so wealthy a city, allured multitudes of pirates and mercenaries to join Demetrius in this expedition; insomuch that the whole sea between the continent and the island was covered with ships; which struck the Rhodians, who had a prospect of this mighty armada from the walls, with great terror and consternation.

Rhodes besieged by Demetrius.

Demetrius, having landed his troops without the reach of the enemy's machines, detached several small bodies to lay waste the country round the city, and cut down the trees and groves, employing the timber, and materials of the houses without the walls, to fortify his camp with strong ramparts and a treble palisade; which work, as many hands were employed, was finished in a few days. The Rhodians, on their part, prepared for a vigorous defence. Many great commanders, who had signalized themselves on other occasions, threw themselves into the city, being desirous to try their skill in military affairs against Demetrius, who was reputed one of the most experienced captains in the conduct of sieges that antiquity had produced. The besieged began with dismissing from the city all such persons as were useless; and then taking an account of those who were capable of bearing arms, they found that the citizens amounted to 6000, and the foreigners to 1000. Liberty was promised to all the slaves who should distinguish themselves by any glorious action, and the public engaged to pay the masters their full ransom. A proclamation was likewise made, declaring, that whoever died in defence of their country should be buried at the expence of the public; that his parents and children should be maintained out of the treasury; that fortunes should be given to his daughters; and his sons, when they were grown up, should be crowned and presented with a complete suit of armour at the great solemnity of Bacchus; which decree kindled an incredible ardour in all ranks of men.

The inhabitants prepare for a vigorous defence.

Demetrius, having planted all his engines, began to batter with incredible fury the walls on the side of the harbour; but was for eight days successively repulsed by the besieged, who set fire to most of his warlike engines, and thereby obliged him to allow them some respite, which they made good use of in repairing the breaches, and building new walls where the old ones were either weak or low. When Demetrius had repaired his engines, he ordered a general assault to be made, and caused his troops to advance with loud shouts, thinking by this means to strike terror into the enemy. But the besieged were so far from being intimidated, that they repulsed the aggressors with great slaughter, and performed the most astonishing feats of bravery. Demetrius returned to the assault next day; but was in the same manner forced to retire, after having lost a great number of men, and some officers of distinction. He had seized, at his first landing, an eminence at a small distance from the city; and, having fortified this advantageous post, he caused several batteries to be erected there, with engines, which incessantly discharged

Engines of Demetrius burnt.

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against the walls stones of 150 pounds weight. The towers, being thus furiously battered night and day, began to totter, and several breaches were opened in the walls: but the Rhodians, unexpectedly sallying out, drove the enemy from their post, overturned their machines, and made a most dreadful havock; insomuch that some of them retired on board their vessels, and were with much ado prevailed upon to come ashore again.

11 Several desperate assaults without success.

Demetrius now ordered a scalade by sea and land at the same time; and so employed the besieged, that they were at a loss what place they should chiefly defend. The attack was carried on with the utmost fury on all sides, and the besieged defended themselves with the greatest intrepidity. Such of the enemy as advanced first were thrown down from the ladders, and miserably bruised. Several of the chief officers, having mounted the walls to encourage the soldiers by their example, were there either killed or taken prisoners. After the combat had lasted many hours, with great slaughter on both sides, Demetrius, notwithstanding all his valour, thought it necessary to retire, in order to repair his engines, and give his men some days rest.

Demetrius being sensible that he could not reduce the city till he was master of the port, after having refreshed his men, he returned with new vigour against the fortifications which defended the entry into the harbour. When he came within the cast of a dart, he caused a vast quantity of burning torches and firebrands to be thrown into the Rhodian ships, which were riding there; and at the same time galled, with dreadful showers of darts, arrows, and stones, such as offered to extinguish the flames. However, in spite of their utmost efforts, the Rhodians put a stop to the fire; and, having with great expedition manned three of their strongest ships, drove with such violence against the vessels on which the enemy's machines were planted, that they were shattered in pieces, and the engines dismounted and thrown into the sea. Excestus the Rhodian admiral, being encouraged by this success, attacked the enemy's fleet with his three ships, and sunk a great many vessels; but was himself at last taken prisoner: the other two vessels made their escape, and regained the port.

As unfortunate as this last attack had proved to Demetrius, he determined to undertake another; and, in order to succeed in his attempt, he ordered a machine of a new invention to be built, which was thrice the height and breadth of those he had lately lost. When the work was finished, he caused the engine to be placed near the port, which he was resolved, at all adventures, to force. But as it was upon the point of entering the harbour, a dreadful storm arising, drove it against the shore, with the vessels on which it had been reared. The besieged, who were attentive to improve all favourable conjunctures, while the tempest was still raging, made a sally against those who defended the eminence mentioned above; and, though repulsed several times, carried it at last, obliging the Demetrians, to the number of 400, to throw down their arms and submit. After this victory gained by the Rhodians, there arrived to their aid 150 Gnossians, and 500 men sent by Ptolemy from Egypt, most of them being natives of Rhodes, who had served among the king's troops.

Demetrius being extremely mortified to see all his batteries against the harbour rendered ineffectual, resolved to employ them by land, in hopes of carrying the city by assault, or at least reducing it to the necessity of capitulating. With this view, having got together a vast quantity of timber and other materials, he framed the famous engine called *helepolis*, which was by many degrees larger than any that had ever been invented before. Its basis was square, each side being in length near 50 cubits, and made up of square pieces of timber, bound together with plates of iron. In the middle part he placed thick planks, about a cubit distance from each other; and on these the men were to stand who forced the engine forward. The whole was moved upon eight strong and large wheels, whose felloes were strengthened with strong iron plates. In order to facilitate and vary the movements of the helepolis, casters were placed under it, whereby it was turned in an instant to what side the workmen and engineers pleased. From each of the four angles a large pillar of wood was carried to about the height of 100 cubits, and inclining to each other; the whole machine consisting of nine stories, whose dimensions gradually lessened in the ascent. The first story was supported by 43 beams, and the last by no more than nine. Three sides of the machine were plated over with iron, to prevent its being damaged by the fire that might be thrown from the city. In the front of each story were windows of the same size and shape as the engines that were to be discharged from thence. To each window were shutters, to draw up for the defence of those who managed the machines, and to deaden the force of the stones thrown by the enemy, the shutters being covered with skins stuffed with wool. Every story was furnished with two large staircases, that whatever was necessary might be brought up by one, while others were going down by the other, and so every thing may be dispatched without tumult or confusion. This huge machine was moved forwards by 3000 of the strongest men of the whole army; but the art with which it was built greatly facilitated the motion. Demetrius caused likewise to be made several testudoes or pent-houses, to cover his men while they advanced to fill up the trenches and ditches; and invented a new sort of galleries, through which those who were employed at the siege might pass and repass at their pleasure, without the least danger. He employed all his seamen in levelling the ground over which the machines were to be brought up, to the space of four furlongs. The number of workmen who were employed on this occasion amounted to 30,000.

12 Demetrius frames a new machine called *helepolis*.

13 The Rhodians raise a new wall.

In the mean time, the Rhodians, observing these formidable preparations, were busy in raising a new wall within that which the enemy intended to batter with the helepolis. In order to accomplish this work, they pulled down the wall which surrounded the theatre, some neighbouring houses, and even some temples, after having solemnly promised to build more magnificent structures in honour of the gods, if the city were preserved. At the same time, they sent out nine of their best ships to seize such of the enemy's vessels as they could meet with, and thereby distress them for want

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want of provisions. As these ships were commanded by their bravest sea-officers, they soon returned with an immense booty, and a great many prisoners. Among other vessels, they took a galley richly laden, on board of which they found a great variety of valuable furniture, and a royal robe, which Phila herself had wrought and sent as a present to her husband Demetrius, accompanied with a letter written with her own hand. The Rhodians sent the furniture, the royal robe, and even the letter, to Ptolemy; which exasperated Demetrius to a great degree.

While Demetrius was preparing to attack the city, the Rhodians having assembled the people and magistrates to consult about the measures they should take, some proposed in the assembly the pulling down of the statues of Antigonus and his son Demetrius, which till then had been held in the utmost veneration. But this proposal was generally rejected with indignation, and their prudent conduct greatly allayed the wrath both of Antigonus and Demetrius. However, the latter continued to carry on the siege with the utmost vigour, thinking it would reflect no small dishonour on him were he obliged to quit the place without making himself master of it. He caused the walls to be secretly undermined: but, when they were ready to fall, a deserter very opportunely gave notice of the whole to the townsmen; who having, with all expedition, drawn a deep trench all along the wall, began to countermine, and, meeting the enemy under ground, obliged them to abandon the work. While both parties guarded the mines, one Athenagoras a Milesian, who had been sent to the assistance of the Rhodians by Ptolemy with a body of mercenaries, promised to betray the city to the Demetrians, and let them in thro' the mines in the night time. But this was only in order to ensnare them; for Alexander, a noble Macedonian, whom Demetrius had sent with a choice body of troops to take possession of a post agreed on, no sooner appeared, but he was taken prisoner by the Rhodians, who were waiting for him under arms.—Athenagoras was crowned by the senate with a crown of gold, and presented with five talents of silver.

14 The walls undermined without success.

15 A general assault to no purpose.

Demetrius now gave over all thoughts of undermining the walls, and placed all his hopes of reducing the city in the battering-engines which he had contrived. Having therefore levelled the ground under the walls, he brought up his helepolis, with four testudoes on each side of it. Two other testudoes of an extraordinary size, bearing battering-rams, were likewise moved forwards by 1000 men. Each story of the helepolis was filled with all sorts of engines for discharging of stones, arrows, and darts. When all things were ready, Demetrius ordered the signal to be given; when his men, setting up a shout, assaulted the city on all sides both by sea and land. But, in the heat of the attack, when the walls were ready to fall by the repeated strokes of the battering-rams, ambassadors arrived from Cnidus, earnestly soliciting Demetrius to suspend all further hostilities, and at the same time giving him hopes that they should prevail upon the Rhodians to submit to an honourable capitulation. A suspension of arms was accordingly agreed on, and ambassadors sent from both sides. But the Rhodians refusing to capitulate on the conditions offered them, the attack was renewed with so much fury, and the machines played off in so brisk a manner, that a large tower built with square stones, and the wall that flanked it, were battered down. The besieged, nevertheless, fought in the breach with so much courage and resolution, that the enemy, after various unsuccessful attempts, were forced to abandon the enterprise, and retire.

16 The besieged receive a large supply of provisions and set the enemy's engines on fire.

In this conjuncture, a fleet which Ptolemy had freighted with 300,000 measures of corn, and different kinds of pulse for the use of the Rhodians, arrived very seasonably in the port, nothwithstanding the vigilance of the enemy's ships, which cruized on the coasts of the island to surprise them. A few days after came in safe two other fleets, one sent by Cassander, with 100,000 bushels of barley; the other by Lysimachus, with 400,000 bushels of corn and as many of barley. This seasonable and plentiful supply arriving when the city began to suffer for want of provisions, inspired the besieged with new courage, and raised their drooping spirits. Being thus animated, they formed a design of setting the enemy's engines on fire; and with this view ordered a body of men to sally out the night ensuing, about the second watch, with torches and firebrands, having first placed on the walls an incredible number of engines, to discharge stones, arrows, darts, and fire-balls, against those who should attempt to oppose their detachment. The Rhodian troops, pursuant to their orders, all on a sudden sallied out, and advancing, in spite of all opposition, to the batteries, set them on fire, while the engines from the walls played incessantly on those who endeavoured to extinguish the flames. The Demetrians on this occasion fell in great numbers, being incapable, in the darkness of the night, either to see the engines that continually discharged showers of stones and arrows upon them, or to join in one body and repulse the enemy. The conflagration was so great, that several plates of iron falling from the helepolis, that vast engine would have been entirely consumed, had not the troops that were stationed in it with all possible speed quenched the fire with water, before prepared, and ready in the apartments of the engine against such accidents. Demetrius, fearing lest all his machines should be consumed, called together, by sound of trumpet, those whose province it was to move them; and, by their help, brought them off before they were entirely destroyed. When it was day, he commanded all the darts and arrows that had been shot by the Rhodians to be carefully gathered, that he might from their number form some judgement of the number of machines in the city. Above 800 firebrands were found on the spot, and no fewer than 1500 darts, all discharged in a very small portion of the night. This struck the prince himself with no small terror; for he never imagined that they would have been able to bear the charges of such formidable preparations. However, after having caused the slain to be buried, and given directions for the curing of the wounded, he applied himself to the repairing of his machines, which had been dismounted and rendered quite unserviceable.

17 They build a third wall.

In the mean time, the besieged, improving the respite allowed them by the removal of the machines, built a third wall in the form of a crescent, which took in all that part that was most exposed to the enemy's batteries; and, besides, drew a deep trench behind the breach,

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breach, to prevent the enemy from entering the city that way. At the same time, they detached a squadron of their best ships, under the command of Amyntas, who made over to the continent of Asia; and there meeting with some privateers who were commissioned by Demetrius, took both the ships and the men, among whom were Timocles the chief of the pirates, and several other officers of distinction belonging to the fleet of Demetrius. On their return, they fell in with several vessels laden with corn for the enemy's camp, which they likewise took, and brought into the port. These were soon followed by a numerous fleet of small vessels loaded with corn and provisions sent them by Ptolemy, together with 1500 men, commanded by Antigonus a Macedonian of great experience in military affairs.—Demetrius, in the mean time, having repaired his machines, brought them up anew to the walls: which he incessantly battered till he opened a great breach and threw down several towers. But when he came to the assault, the Rhodians, under the command of Aminias, defended themselves with such resolution and intrepidity, that he was in three successive attacks repulsed with great slaughter, and at last forced to retire. The Rhodians likewise, on this occasion, lost several officers; and amongst others, the brave Aminias their commander.

18 Demetrius makes a breach in the walls, but is still repulsed.

While the Rhodians were thus signalizing themselves in the defence of their country, a second embassy arrived at the camp of Demetrius from Athens and the other cities of Greece, soliciting Demetrius to compose matters, and strike up a peace with the Rhodians. At the request of the ambassadors, who were in all above 50, a cessation of arms was agreed upon; but the terms offered by Demetrius being anew rejected by the Rhodians, the ambassadors returned home without being able to bring the contending parties to an agreement. Hostilities were therefore renewed; and Demetrius, whose imagination was fertile in expedients for succeeding in his projects, formed a detachment of 1500 of his best troops, under the conduct of Alcimus and Mancius, two officers of great resolution and experience, ordering them to enter the breach at midnight, and, forcing the entrenchment behind it, to possess themselves of the posts about the theatre, where it would be no difficult matter to maintain themselves against any efforts of the townsmen. In order to facilitate the execution of so important and dangerous an undertaking, and amuse the enemy with false attacks, he at the same time, upon a signal given, ordered the rest of the army to set up a shout, and attack the city on all sides both by sea and land. By this means he hoped that, the besieged being alarmed in all parts, his detachment might find an opportunity of forcing the entrenchments which covered the breach, and afterwards of seizing the advantageous post about the theatre. This feint had all the success the prince could expect; for the troops having set up a shout from all quarters, as if they were advancing to a general assault, the detachment commanded by Alcimus and Mancius entered the breach, and fell upon those who defended the ditch, and the wall that covered it, with such vigour, that, having slain the most part of them and put the rest in confusion, they advanced to the theatre, and seized on the post adjoining to it. This occasioned a general uproar in the city, as if it had been already taken: but the commanding officers dispatched orders to the soldiers on the ramparts not to quit their posts, nor stir from their respective stations. Having thus secured the walls, they put themselves at the head of a chosen body of their own troops, and of those who were lately come from Egypt, and with these charged the enemy's detachment. But the darkness of the night prevented them from dislodging the enemy and regaining the advantageous posts they had seized. Day, however, no sooner appeared, than they renewed their attack with wonderful bravery. The Demetrians without the walls, with loud shouts endeavoured to animate those who had entered the place, and inspire them with resolution to maintain their ground till they were relieved with fresh troops. The Rhodians being sensible that their fortunes, liberties, and all that was dear to them in the world, lay at stake, fought like men in the utmost despair, the enemy defending their posts for several hours without giving ground in the least. At length the Rhodians, encouraging each other to exert themselves in defence of their country, and animated by the example of their leaders, made a last effort, and, breaking into the very heart of the enemy's battalion, there killed both their commanders. After their death the rest were easily put in disorder, and all to a man either killed or taken prisoners. The Rhodians likewise on this occasion lost many of their best commanders; and among the rest Damotetis, their chief magistrate, a man of extraordinary valour, who had signalized himself during the whole time of the siege.

19 His troops enter the breach;

20 But are all killed or taken.

Demetrius, not at all discouraged by this check, was making the necessary preparations for a new assault, when he received letters from his father Antigonus, enjoining him to conclude a peace with the Rhodians upon the best terms he could get, lest he should lose his whole army in the siege of a single town. From this time Demetrius wanted only some plausible pretence for breaking up the siege. The Rhodians likewise were now more inclined to come to an agreement than formerly; Ptolemy having acquainted them that he intended to send a great quantity of corn, and 3000 men to their assistance, but that he would first have them try whether they could make up matters with Demetrius upon reasonable terms. At the same time ambassadors arrived from the Ætolian republic, soliciting the contending parties to put an end to a war which might involve all the east in endless calamities.

An accident which happened to Demetrius in this conjuncture, did not a little contribute towards the wished-for pacification. This prince was preparing to advance his helepolis against the city, when a Rhodian engineer found means to render it quite useless. He undermined the tract of ground over which the helepolis was to pass the next day in order to approach the walls. Demetrius, not suspecting any stratagem of this nature, caused the engine to be moved forward, which coming to the place that was undermined, sunk so deep into the ground that it was impossible to draw it out again. This misfortune, if we believe Vegetius and Vitruvius, determined Demetrius to hearken to the Ætolian ambassadors, and at last to strike up a peace upon the following conditions: That the republic of Rhodes should be maintained in the full enjoyment of their ancient rights, privileges, and liberties, without any foreign garrison; that they should renew their ancient alliance with

21 The helepolis rendered useless.

22 The siege raised.

with Antigonus, and assist him in his wars against all states and princes except Ptolemy king of Egypt; and that, for the effectual performance of the articles stipulated between them, they should deliver 100 hostages, such as Demetrius should make choice of, except those who bore any public employment.

Thus was the siege raised, after it had continued a whole year; and the Rhodians amply rewarded all those who had distinguished themselves in the service of their country. They also set up statues to Ptolemy, Cassander, and Lysimachus; to all of whom they paid the highest honours, especially to the first, whom they worshipped as a god. Demetrius at his departure presented them with the helepolis, and all the other machines which he had employed in battering the city; from the sale of which, with some additional sums of their own, they erected the famous colossus. After this they applied themselves entirely to trade and navigation; by which means they became quite masters of the sea, and much more opulent than any of the neighbouring nations. As far as lay in their power, they endeavoured to preserve a neutrality with regard to the jarring nations of the east. However, they could not avoid a war with the Byzantines, the occasion of which was as follows: The Byzantines being obliged to pay a yearly tribute of 80 talents to the Gauls, in order to raise this sum, they came to a resolution of laying a toll on all ships that traded to the Pontic sea. This resolution provoked the Rhodians, who were a trading nation, above all the rest. For this reason they immediately dispatched ambassadors to the Byzantines, complaining of the new tax; but as the Byzantines had no other method of satisfying the Gauls, they persisted in their resolution. The Rhodians now declared war, and prevailed upon Prusias king of Bithynia, and Attalus king of Pergamus, to assist them; by which confederacy the Byzantines were so intimidated, that they agreed to exact no toll from ships trading to the Pontic sea, the demand which had been the occasion of the war.

23 War with the Byzantines.

24 A dreadful earthquake at Rhodes.

About this time happened a dreadful earthquake, which threw down the colossus, the arsenal, and great part of the city-walls of Rhodes; which calamity the Rhodians improved to their advantage, sending ambassadors to all the Grecian princes and states, to whom their losses were so much exaggerated, that their countrymen obtained immense sums of money under pretence of repairing them. Hiero king of Syracuse presented them with 100 talents; and, besides, exempted from all tolls and duties such as traded to Rhodes. Ptolemy king of Egypt gave them 100 talents, a million of measures of wheat, materials for building 20 quinqueremes and the like number of triremes; and, besides, sent them 100 architects, 300 workmen, and materials for repairing their public buildings, to a great value, paying them moreover 14 talents a-year for the maintenance of the workmen whom he sent them. Antigonus gave them 100 talents of silver, with 10,000 pieces of timber, each piece being 16 cubits long; 7000 planks; 3000 pounds of iron, as many of pitch and resin, and 1000 measures of tar. Chryseis, a woman of distinction, sent them 100,000 measures of wheat, and 3000 pounds of lead. Antiochus exempted from all taxes and duties the Rhodian ships trading to his dominions; presented them with 10 galleys, and 200,000 measures of corn, with many other things of great value. Prusias, Mithridates, and all the princes then reigning in Asia, made them proportionable presents: in short, all the Greek towns and nations, all the princes of Europe and Asia, contributed, according to their ability, to the relief of the Rhodians on that occasion; insomuch that their city not only soon rose from its ruins, but attained to an higher pitch of splendor than ever.

In the year 203 B. C. the Rhodians engaged in a war with Philip of Macedon. This monarch had invaded the territories of Attalus king of Pergamus; and because the Rhodians seemed to favour their ancient friend, sent one Heraclides, by birth a Tarentine, to set fire to their fleet; at the same time that he dispatched ambassadors into Crete, in order to stir up the Cretans against the Rhodians, and prevent them from sending any assistance to Attalus. Upon this war was immediately proclaimed. Philip at first gained an inconsiderable advantage in a naval engagement; but the next year was defeated with the loss of 11,000 men, while the Rhodians lost but 60 men and Attalus 70. After this he carefully avoided coming to an engagement at sea either with Attalus or the Rhodians. The combined fleet, in the mean time, sailed towards the island of Ægina in hopes of intercepting him: but having failed in their purpose, they sailed to Athens, where they concluded a treaty with that people; and, on their return, drew all the Cyclades into a confederacy against Philip. But while the allies were thus wasting their time in negociations, Philip, having divided his forces into two bodies, sent one, under the command of Philocles, to ravage the Athenian territories; and put the other aboard his fleet, with orders to sail to Meronea, a city on the north side of Thrace. He then marched towards that city himself with a body of forces, took it by assault, and reduced a great many others; so that the confederates would, in all probability, have had little reason to boast of their success, had not the Romans come to their assistance, by whose help the war was soon terminated to their advantage. In the war which took place between the Romans and Antiochus the Great king of Syria, the Rhodians were very useful allies to the former. The best part of their fleet was indeed destroyed by a treacherous contrivance of Polyxeniades the Syrian admiral; but they soon fitted out another, and defeated a Syrian squadron commanded by the celebrated Hannibal, the Carthaginian commander; after which, in conjunction with the Romans, they utterly defeated the whole Syrian fleet commanded by Polyxeniades; which, together with the loss of the battle of Magnesia, so dispirited Antiochus, that he submitted to whatever conditions the Romans pleased.

25 War with Philip of Macedon.

26 The Rhodians assisted by the Romans.

For these services the Rhodians were rewarded with the provinces of Lycia and Caria; but tyrannizing over the people in a terrible manner, the Lycians applied to the Romans for protection. This was readily granted; but the Rhodians were so much displeased with their interfering in this matter, that they secretly favoured Perses in the war which broke out between him and the Roman republic. For this offence the two provinces above-mentioned were taken from them; but the Rhodians, having banished or put death those who had favoured Perses, were again admitted into favour,

vour, and greatly honoured by the ſenate. In the Mithridatic war, their alliance with Rome brought upon them the king of Pontus with all his force; but having loſt the greateſt part of his fleet before the city, he was obliged to raiſe the ſiege without performing any remarkable exploit. In the war which Pompey made on the Cilician pirates, the Rhodians aſſiſted him with all their naval force, and had a great ſhare in the victories which he gained. In the civil war between Cæſar and Pompey, they aſſiſted the latter with a very numerous fleet. After his death they ſided with Cæſar; which drew upon them the reſentment of C. Caſſius, who advanced to the iſland of Rhodes with a powerful fleet, after having reduced the greateſt part of the continent. The Rhodians, terrified at his approach, ſent ambaſſadors intreating him to make up matters in an amicable manner, and promiſing to ſtand neuter, and recal the ſhips which they had ſent to the aſſiſtance of the triumviri. Caſſius inſiſted upon their delivering up their fleet to him, and putting him in poſſeſſion both of their harbour and city. This demand the Rhodians would by no means comply with, and therefore began to put themselves in a condition to ſtand a ſiege; but firſt ſent Archelaus, who had taught Caſſius the Greek tongue while he ſtudied at Rhodes, to intercede with his diſciple in their behalf. Archelaus could not, with all his authority, prevail upon him to moderate his demands; wherefore the Rhodians, having created one Alexander, a bold and enterpriſing man, their prætor or prytanis, equipped a fleet of 33 ſail, and ſent it out under the command of Mnaſeus, an experienced ſea-officer, to offer Caſſius battle. Both fleets fought with incredible bravery, and the victory was long doubtful: but the Rhodians, being at length overpowered by numbers, were forced to return with their fleet to Rhodes; two of their ſhips being ſunk, and the reſt very much damaged by the heavy ſhips of the Romans. This was the firſt time, as our author obſerves, that the Rhodians were fairly overcome in a ſea-fight.

Caſſius, who had beheld this fight from a neighbouring hill, having refitted his fleet, which had been no leſs damaged than that of the Rhodians, repaired to Loryma, a ſtronghold on the continent belonging to the Rhodians. This caſtle he took by aſſault; and from hence conveyed his land-forces, under the conduct of Fannius and Lentulus, over into the iſland. His fleet conſiſted of 80 ſhips of war and above 200 tranſports. The Rhodians no ſooner ſaw this mighty fleet appear, but they went out again to meet the enemy. The ſecond engagement was far more bloody than the firſt; many ſhips were ſunk, and great numbers of men killed on both ſides. But victory anew declared for the Romans; who immediately blocked up the city of Rhodes both by ſea and land. As the Rhodians had not had time to furniſh the city with ſufficient ſtore of proviſions, ſome of the inhabitants, fearing that if it were taken either by aſſault or by famine, Caſſius would put all the inhabitants to the ſword, as Brutus had lately done at Xanthus, privately opened the gate to him, and put him in poſſeſſion of the town, which he nevertheleſs treated as if it had been taken by aſſault. He commanded 50 of the chief citizens, who were ſuſpected to favour the adverſe party, to be brought before him, and ſentenced them all to die; others, to the number of 25, who had commanded the fleet or army because they did not appear when ſummoned, he proſcribed. Having thus puniſhed ſuch as had either acted or ſpoken againſt him or his party, he commanded the Rhodians to deliver up to him all their ſhips, and whatever money they had in the public treaſury. He then plundered the temples; ſtripping them of all their valuable furniture, veſſels, and ſtatues. He is ſaid not to have left one ſtatue in the whole city, except that of the ſun; bragging, at his departure, that he had ſtripped the Rhodians of all they had, leaving them nothing but the ſun. As to private perſons, he commanded them, under ſevere penalties, to bring to him all the gold and ſilver they had, promiſing, by a public crier, a tenth part to ſuch as ſhould diſcover any hidden treaſures. The Rhodians at firſt concealed ſome part of their wealth, imagining that Caſſius intended by this proclamation only to terrify them; but when they found he was in earneſt, and ſaw ſeveral wealthy citizens put to death for concealing only a ſmall portion of their riches, they deſired that the time prefixed for the bringing in their gold and ſilver might be prolonged. Caſſius willingly granted them their requeſt; and then through fear they dug up what they had hid under ground, and laid at his feet all they were worth in the world. By this means he extorted from private perſons above 8000 talents. He then fined the city in 500 more; and leaving L. Varus there with a ſtrong garriſon to exact the fine without any abatement, he returned to the continent.

Rhodes.

After the death of Caſſius, Marc Antony reſtored the Rhodians to their ancient rights and privileges; bestowing upon them the islands of Andros, Naxos, Tenos, and the city of Myndus. But theſe the Rhodians ſo oppreſſed and loaded with taxes, that the ſame Antony, though a great friend to the Rhodian republic, was obliged to diveſt her of the ſovereignty over thoſe places, which he had a little before ſo liberally beſtowed upon her. From this time to the reign of the Emperor Claudius we find no mention made of the Rhodians. That prince, as Dion informs us, deprived them of their liberty for having crucified ſome Roman citizens. However, he ſoon reſtored them to their former condition, as we read in Suetonius and Tacitus. The latter adds, that they had been as often deprived of, as reſtored to, their liberty, by way of puniſhment or reward for their different behaviour, as they had obliged the Romans with their aſſiſtance in foreign wars, or provoked them with their ſeditions at home. Pliny, who wrote in the beginning of Veſpaſian's reign, ſtyles Rhodes a *beautiful and free town*. But this liberty they did not long enjoy, the iſland being ſoon after reduced by the ſame Veſpaſian to a Roman province, and obliged to pay a yearly tribute to their new maſters. This province was called the *province of the iſlands*. The Roman pretor who governed it reſided at Rhodes, as the chief city under his juriſdiction; and Rome, notwithſtanding the eminent ſervices rendered her by this republic, thenceforth treated the Rhodians not as allies, but vaſſals.

30 Rhodes reduced to a Roman province by Veſpaſian.

The iſland of Rhodes continued ſubject to the Romans till the reign of the emperor Andronicus; when Villaret, grand-maſter of the knights of Jeruſalem, then reſiding in Cyprus, finding himſelf much expoſed to the attacks of the Saracens in that iſland, reſolved to exchange it for that of Rhodes. This iſland too was almost

31 Expeditions of Villaret grand-master of the knights of Jeruſalem against Rhodes.

Rhodes.

almost entirely occupied by the Saracens; Andronicus the eastern emperor possessing little more in it than a castle. Nevertheless he refused to grant the investiture of the island to Villaret. The latter, without spending time in fruitless negociations, sailed directly for Rhodes, where he landed his troops, provisions, and warlike stores, in spite of the opposition made by the Saracens, who then united against the common enemy. As Villaret foresaw that the capital must be taken before he could reduce the island, he instantly laid siege to it. The inhabitants defended themselves obstinately, upon which the grand-master thought proper to turn the siege into a blockade; but he soon found himself so closely surrounded by the Greeks and Saracens, that he could get no supply either of forage or provisions for his army. But having at length obtained a supply of provisions by means of large sums borrowed of the Florentines, he came out of his trenches and attacked the Saracens, with a full resolution either to conquer or die. A bloody fight ensued, in which a great number of the bravest knights were killed: but at length the Saracens gave way, and fled to their ships; upon which the city was immediately assaulted and taken. The Greeks and other Christians had their lives and liberties given them, but the Saracens were all cut to pieces. The reduction of the capital was followed by that of all the other places of inferior strength throughout the island; and in four years after their landing, the whole was subjugated, and the conquerors took the title of the *Knights of Rhodes*. For many years those knights continued the terror of the Saracens and Turks, and sustained a severe siege from Mohammed II. who was compelled to abandon the enterprise; but at length the Turkish sultan Solyman resolved at all events to drive them from it. Before he undertook the expedition, he sent a message commanding them to depart the island without delay; in which case he promised that neither they nor the inhabitants should suffer any injury, but threatened them with his utmost vengeance if they refused his offer. The knights, however, proving obstinate, Solyman attacked the city with a fleet of 400 sail and an army of 140,000 men.

32 He conquers the Saracens, and reduces the island.

33 The city besieged by Solyman.

The trenches were soon brought close to the counterscarp, and a strong battery raised against the town; which, however, did but little damage, till the sultan being informed by a spy of this particular, and that he was in danger of receiving some fatal shot from the tower of St John which overlooked his camp, he planted a battery against that tower, and quickly brought it down. Solyman, however, finding the whole place in some measure covered with strong fortifications of such height as to command all his batteries, ordered an immense quantity of stones and earth to be brought; in which so great a number of hands were employed night and day by turns, that they quickly raised a couple of hillocks high enough to overtop the city-walls. They plied them accordingly with such a continual fire, that the grand-master was obliged to cause them to be strongly propped within with earth and timber. All this while the besieged, who, from the top of the grand-master's palace, could discover how their batteries were planted, demolished them with their cannon almost as fast as they raised them.

Here the enemy thought proper to alter their measures, and to plant a strong battery against the tower of St Nicholas, which, in the former siege by Mohammed, had resisted all the efforts of the then grand-vizier. This the bashaw of Romania caused to be battered with 12 large pieces of brass cannon, but had the mortification to see them all dismounted by those of the tower; to prevent which in future, he ordered them to be fired only in the night, and in the day had them covered with gabions and earth. This had such success, that, after 500 cannon-shot, the wall began to shake and tumble into the ditch; but he was surprised to find another wall behind it, well terraced, and bordered with artillery, and himself obliged either to begin afresh or give up the enterprise: and yet this last was what Solyman preferred, when he was told of its being built on a hard rock, incapable of being sapped, and how firmly it had held out against all the efforts of Mohammed's vizier. The next attack was therefore ordered by him to be made against the bastions of the town, and that with a vast number of the largest artillery, which continued firing during a whole month; so that the new wall of the bastion of England was quite demolished, though the old one stood proof against all their shot. That of Italy, which was battered by 17 large pieces of cannon, was still worse damaged; upon which Martinengo the engineer advised the grand-master to cause a sally to be made on the trenches of the enemy out of the breach, whilst he was making fresh entrenchments behind it. His advice succeeded; and the 200 men that sallied out sword in hand having surprised the Turks in the trench, cut most of them in pieces. At the same time a new detachment, which was sent to repulse them, being obliged, as that engineer rightly judged, to pass by a spot which lay open to their artillery, were likewise mostly destroyed by the continual fire that came from it, whilst the assailants were employed in filling up several fathoms of the trench before they retired. By that time the breach had been repaired with such new works, that all the efforts to mount it by assault proved equally ineffectual and destructive.

Unfortunately for the besieged, the continual fire they had made caused such a consumption of their powder, that they began to feel the want of it; the perfidious d'Amarald, whose province it had been to visit the magazines of it, having amused the council with a false report, that there was more than sufficient to maintain the siege, though it should last a whole twelvemonth. But here the grand-master found means to supply in some measure that unexpected defect, by the cautious provision he had made of a large quantity of saltpetre, which was immediately ground and made into gunpowder, though he was at the same time obliged to order the engineers to be more sparing of it for the future, and to make use of it only in the defence of such breaches as the enemy should make.

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All this while the Turks had not gained an inch of ground; and the breaches they had made were so suddenly either repaired or defended by new entrenchments, that the very rubbish of them must be mounted by assault. Solyman, therefore, thought it now advisable to set his numerous pioneers at work, in five different parts, in digging of mines, each of which led to the bastion opposite to it. Some of these were countermined by a new invented method of Martinengo; who, by the help of braced skins, or drums, could discover where

Desp[illegible] enc[illegible] in mi[illegible] &c.

where the miners were at work. Some of these he perceived, which he caused to be opened, and the miners to be driven out by hand grenadoes; others to be smothered, or burned, by setting fire to gunpowder. Yet did not this hinder two considerable ones to be sprung, which did a vast deal of damage to the bastion of England, by throwing down about six fathoms of the wall, and filling up the ditch with its rubbish: whereupon the Turks immediately climbed up sword in hand to the top of it, and planted seven of their standards upon the parapet; but being stopped by a traverse, the knights, recovering from their surprise, fell upon them with such fury, that they were obliged to abandon it with great loss. The grand-master, who was then at church, quickly came to the place with his short pike in his hand, attended by his knights, encouraging all he met with, burghers, soldiers, and others, to fight bravely in defence of their religion and country, and arrived time enough to assist in the taking down their standards, and driving down the enemy by the way they came up. In vain did the vizier Mustapha endeavour to prevent their flight by killing some of the foremost with his sword, and driving the rest back; they were obliged to abandon the bastion, and, which was still worse, met with that death in their flight, which they had strove to shun from the fire-arms which were discharged upon them from the ramparts. Three sangiacs lost their lives in this attack, besides some thousands of the Turks; the grand-master, on his side, lost some of his bravest knights, particularly his standard-bearer.

The attacks were almost daily renewed with the same ill success and loss of men, every general striving to signalize himself in the sight of their emperor. At length the old general Peri, or Pyrrus, having harassed the troops which guarded the bastion of Italy for several days successively without intermission, caused a strong detachment, which he had kept concealed behind a cavalier, to mount the place by break of day, on the 13th of September; where, finding them overcome with sleep and fatigue, they cut the throats of the sentinels, and, sliding through the breach, were just going to fall upon them. The Italians, however, quickly recovered themselves and their arms, and gave them an obstinate repulse. The contest was fierce and bloody on both sides; and the bashaw, still supplying his own with new reinforcements, would hardly have failed of overpowering the other, had not the grand-master, whom the alarm had quickly reached, timely intervened, and, by his presence, as well as example, revived his Rhodians, and thrown a sudden panic among the enemy. Pyrrus, desirous to do something to wipe off the disgrace of this repulse, tried his fortune next on an adjoining work, lately raised by the grand-master Carettii: but here his soldiers met with a still worse treatment, being almost overwhelmed with the hand-grenadoes, melted pitch, and boiling oil, which came pouring upon them, whilst the forces which were on the adjacent flanks made as great a slaughter of those that fled; insomuch that the janissaries began to resume their old murmuring tone, and cry out that they were brought thither only to be slaughtered.

The grand vizier Mustapha, afraid lest their complaints should reach his master, agreed at length, as the last resort, to make a fresh attempt on the bastion of England, whilst, to cause a diversion, the bashaw Ahmed sprung some fresh mines at an opposite part of the city. This was accordingly executed on the 17th of September; when the former, at the head of five battalions, resolutely mounted or rather crept up the breach, and, in spite of the fire of the English, advanced so far as to pitch some standards on the top; when, on a sudden, a crowd of English knights, commanded by one Bouk, or Burk, sallied out of their entrenchments, and, assisted by some other officers of distinction, obliged them to retire, though in good order. Mustapha, provoked at it, led them back, and killed several knights with his own hand; and had his men supported him as they ought, the place must have been yielded to him: but the fire which was made from the adjacent batteries and musketry disconcerted them to such a degree, that neither threats nor entreaties could prevent their abandoning the enterprise, and dragging him away with them by main force. The Rhodians lost in that action several brave knights, both English and German; and, in particular, John Burk, their valiant commander: but the Turks lost above 3000 men, besides many officers of distinction. Much the same ill success having attended Ahmed with his mines, one of which had been opened, and the other only bringing some fathoms of the wall down, he was also obliged to retreat; his troops, though some of the very best, being forced to disperse themselves, after having borne the fire and fury of the Spanish and Auvergnian knights as long as they were able.

By this time Solyman, ashamed and exasperated at his ill success, called a general council; in which he made some stinging reflections on his vizier, for having represented the reduction of Rhodes as a very easy enterprise. To avoid the effects of the sultan's resentment, the subtle Mustapha declared, that hitherto they had fought the enemy as it were upon equal terms, as if they had been afraid of taking an ungenerous advantage of their superiority, by which, said he, we have given them an opportunity of opposing us with their united force wherever we attacked them. But let us now resolve upon a general assault on several sides of the town; and see what a poor defence their strength, thus divided, will be able to make against our united force. The advice was immediately approved by all, and the time appointed for the execution of it was on the 24th of that month, and every thing was ordered to be got ready against that day. Accordingly the town was actually assaulted at four different parts, after having suffered a continual fire for some time from their artillery in order to widen the breaches; by which the grand-master easily understood their design, and that the bastions of England and Spain, the post of Provence, and terrace of Italy, were pitched upon for the assault, and took his precautions accordingly.

37 An assault in four different places at once.

The morning was no sooner come, than each party mounted their respective breach with an undaunted bravery, the young sultan, to animate them the more, having ordered his throne to be reared on an eminence, whence he could see all that was done. The Rhodians, on the other hand, were no less diligent in repulsing them with their cannon and other fire-arms, with their melted lead, boiling oil, stink-pots, and other usual expedients. The one side ascend the scaling ladders, fearless of all that opposed them; the other overturn their

Rhodes. their ladders and ſend them tumbling down headlong into the ditches, where they were overwhelmed with ſtones, or diſpatched with darts and other miſſile weapons. The baſtion of England proves the ſcene of the greateſt ſlaughter and bloodſhed; and the grand-maſter makes that his poſt of honour, and, by his preſence and example, inſpires his men with freſh vigour and bravery, whilſt the continual thunder of his artillery makes ſuch horrid work among the aſſailants as chills all their courage, and forces them to give way: the lieutenant-general, who commands the attack, leads them back with freſh vigour, and mounts the breach at the head of all; immediately after comes a cannon-ball from the Spaniſh baſtion, which overturns him dead into the ditch. This diſaſter, inſtead of fear and dread, fills them with a furious deſire of revenging his death: but all their obſtinacy cannot make the Rhodians go one ſtep back, whilſt the prieſts, monks, young men and old, and even women of every rank and age, aſſiſt them with an uncommon ardour and firmneſs; ſome in overwhelming the enemy with ſtones; others in deſtroying them with melted lead, ſulphur, and other combuſtibles; and a third ſort in ſupplying the combatants with bread, wine, and other refreſhments.

The aſſault was no leſs deſperate and bloody on the baſtion of Spain, where the knights, who guarded it, not expecting to be ſo ſoon attacked, and aſhamed to ſtand idle, were aſſiſting the baſtion of Italy; which gave the Turks an opportunity to mount the breach, and penetrate as far as their intrenchments, where they planted no leſs than 30 of their ſtandards on them. The grand-maſter was quickly appriſed of it, and ordered the baſtion of Auvergne to play againſt them; which was done with ſuch diligence, and ſuch continual fire, whilſt the Rhodians enter the baſtion by the help of their caſemates, and, ſword in hand, fall upon them with equal fury, that the Turks, alike beſet by the fire of the artillery and the arms of the Rhodian knights, were forced to abandon the place with a conſiderable loſs. The aga with great bravery rallies them afreſh, and brings them back, by which time the grand-maſter likewiſe appeared. The fight was renewed with greater fierceneſs; and ſuch ſlaughter was made on both ſides, that the grand-maſter was obliged to draw 200 men out of St Nicholas tower to his aſſiſtance: theſe were commanded by ſome Roman knights, who led them on with ſuch ſpeed and bravery, that their very appearance on the baſtion made the janiſſaries draw back; which Solyman obſerving from his eminence, cauſed a retreat to be ſounded, to conceal the diſgrace of their flight. In theſe attacks there fell about 15,000 of his beſt troops, beſides ſeveral officers of diſtinction. The loſs of the beſieged was no leſs conſiderable, if we judge from the ſmall number of their forces; but the greateſt of all to them was that of ſome of their braveſt and moſt diſtinguiſhed knights and commanders, many of whom were killed, and ſcarce any eſcaped unwounded. But the moſt dreadful fate of all had like to have fallen on the favourite vizier Muſtapha, who had propoſed this general aſſault: the ill ſucceſs of which had ſo enraged the proud ſultan, that he condemned him to be ſhot with arrows at the head of his army; which dreadful ſentence was juſt ready to be executed, when the old baſhaw, by his intreaties, obtained a ſuſpenſion of it, in hopes that, when his fury was abated, he ſhould alſo obtain his pardon.

Solyman, however, was ſo diſcouraged by his ill ſucceſſes, that he was on the point of raiſing the ſiege, and would have actually done ſo, had he not been diverted from it by the advice which he received from an Albanian deſerter, ſome ſay by a letter from the traitor d'Amarald, that the far greater part of the knights were either killed or wounded, and thoſe that remained altogether incapable of ſuſtaining a freſh aſſault. This having determined him to try his fortune once more, the command of his forces was turned over to the baſhaw Achmed; and, to ſhow that he deſigned not to ſtir till he was maſter of the place, he ordered a houſe to be built on the adjacent mount Philermo for his winter-quarters. Achmed marched directly againſt the baſtion of Spain, which had ſuffered the moſt; where, before he could open the trenches, his men fell thick and threefold by the conſtant fire both of ſmall and great guns from the baſtion of Auvergne. He loſt ſtill a much greater number in rearing a rampart of earth to cover the attack, and give him an opportunity of ſapping the wall; and, as ſoon as he ſaw a large piece fall, ordered his men to mount the breach. They were no ſooner come to the top, than they found a new work and entrenchments which Martinengo had reared; and there they were welcomed with ſuch a briſk fire from the artillery, that they were glad to recover their trenches with the utmoſt precipitation, after having loſt the much greater part of their men. The attack was renewed, and a reciprocal fire continued with great obſtinacy, till a muſket-ſhot deprived that indefatigable engineer of one of his eyes, and the order of his aſſiduous ſervices for ſome time. The grand-maſter, having ordered him to be carried to his palace, took his place, and kept it till he was quite cured, which was not till 34 days after; and continued all the time in the intrenchments with his handful of knights, ſcarcely allowing himſelf reſt night or day, and ever ready to expoſe himſelf to the greateſt dangers, with an ardour more becoming a junior officer than an old worn-out ſovereign; which made his knights more laviſh of their own lives than their paucity and preſent circumſtances could well admit of.

Soon after this, the treaſon of D'Amarald was diſcovered, and he was condemned to death and executed; but by this time the city was reduced to the laſt extremity. The pope, emperor, and other crowned heads, had been long and often importuned by the grand-maſter for ſpeedy aſſiſtance, without ſucceſs; and, as an addition to all the other diſaſters, thoſe ſuccours which were ſent to him from France and England periſhed at ſea. The new ſupply which he had ſent for of proviſions from Candia had the ſame ill fate; ſo that the winds, ſeas, and every thing, ſeemed combined to bring on the deſtruction of that city and order. The only reſource which could be thought of, under ſo diſmal a ſituation, was, to ſend for the few remaining knights and forces which were left to guard the other iſlands, to come to the defence of their capital, in hopes that, if they could ſave this, the others might in time be recovered, in caſe the Turks ſhould ſeize upon them. On the other hand, Solyman, grown impatient at the ſmall ground his general had gained, gave him expreſs orders to renew the attack with all imaginable ſpeed

and vigour, before the ſuccours which he apprehended were coming from Europe, obliged him to raiſe the ſiege. Achmed inſtantly obeyed, raiſed a battery of 17 large cannon againſt the baſtion of Italy, and quickly after made himſelf maſter of it, obliging the garriſon to retire farther into the city. Here the grand-maſter was forced to demoliſh two of the churches, to prevent the enemy's ſeizing on them; and, with their materials, cauſed ſome new works and entrenchments to be made to hinder their proceeding farther.

The Turks, however, gained ground every day, though they ſtill loſt vaſt numbers of their men: at length the 30th of November came, when the grand-maſter, and both the beſiegers and beſieged, thought the laſt aſſault was to be given. The baſhaw Pyrrus, who commanded it, led his men directly to the entrenchments; upon which the bells of all the churches ſounded the alarm. The grand-maſter, and his few knights, troops, and citizens, ran in crowds, and in a confuſed diſorderly manner, to the entrenchments, each fighting in his own way, or rather as his fear directed him. This attack would have proved one of the moſt deſperate that had yet been felt, had not a moſt vehement rain intervened, which carried away all the earth which the enemy had reared to ſerve them as a rampart againſt the artillery of the baſtion of Auvergne; ſo that being now quite expoſed to their continual fire, they fell in ſuch great numbers, that the baſhaw could no longer make them ſtand their ground, but all precipitately fled towards their camp. This laſt repulſe threw the proud ſultan into ſuch a fury, that none of his officers dared to come near him; and the ſhame of his having now ſpent near ſix whole months with ſuch a numerous army before the place, and having loſt ſuch myriads of his brave troops with ſo little advantage, had made him quite deſperate, and they all dreaded the conſequences of his reſentment.

Pyrrus at length, having given it time to cool, ventured to approach him, and propoſe a new project to him, which, if approved, could hardly fail of ſucceſs; which was, to offer the town a generous capitulation; and he obſerved, that in caſe the ſtubborn knights ſhould reject it, yet being now reduced to ſo ſmall a number, as well as their forces and fortifications almoſt deſtroyed, the citizens, who were moſt of them Greeks, and leſs ambitious of glory than ſolicitous for their own preſervation, would undoubtedly accept of any compoſition that ſhould ſecure to them their lives and effects.

This propoſal being reliſhed by the ſultan, letters were immediately diſperſed about the city in his name, exhorting them to ſubmit to his government, and threatening them at the ſame time with the moſt dreadful effects of his reſentment if they perſiſted in their obſtinacy. Pyrrus likewiſe diſpatched a Genoeſe to approach as near as he could to the baſtion of Auvergne, and to intreat the knights to take pity of ſo many of their Chriſtian brethren, and not expoſe them to the dreadful effects which muſt follow their refuſal of a capitulation, ſo generouſly offered them at their laſt extremity. Other agents were likewiſe employed in other places: to all of whom the grand-maſter ordered ſome of his men to return this anſwer, That his order never treated with infidels but with ſword in hand. An Albanian was ſent next with a letter from the ſultan to him, who met with the ſame repulſe; after which, he ordered his men to fire upon any that ſhould preſent themſelves upon the ſame pretence; which was actually done. But this did not prevent the Rhodians from liſtening to the terms offered by the Turks, and holding frequent cabals upon that ſubject; in which the general maſſacre of a town taken by aſſault, the dreadful ſlavery of thoſe that eſcaped, the rape of their wives and daughters, the deſtruction of their churches, the profanation of their holy relics and ſacred utenſils, and other dire conſequences of an obſtinate refuſal, being duly weighed againſt the ſultan's offers, quickly determined them which party to take. The grand-maſter, however, proving inexorable to all their intreaties, they applied to their Greek metropolitan, who readily went and repreſented all theſe things to him in the moſt pathetic terms: Yet he met with no better reception; but was told, that he and his knights were determined to be buried under the ruins of the city if their ſwords could no longer defend it, and he hoped their example would not permit them to ſhow leſs courage on that occaſion. This anſwer produced a quite contrary effect; and, as the citizens thought delays dangerous at ſuch a juncture, they came in a body to him by the very next morning, and plainly told him, that if he paid no greater regard to their preſervation, they would not fail of taking the moſt proper meaſures to preſerve the lives and chaſtity of their wives and children.

This reſolution could not but greatly alarm the grand-maſter; who thereupon called a council of all the knights, and informed them himſelf of the condition of the place. Theſe all agreed, particularly the engineer Martinengo, that it was no longer defenſible, and no other reſource left but to accept the ſultan's offers; adding, at the ſame time, that though they were all ready, according to the obligations of their order, to fight to the laſt drop of their blood, yet it was no leſs their duty to provide for the ſafety of the inhabitants, who, not being bound by the ſame obligations, ought not to be made a ſacrifice to their glory. It was therefore agreed, with the grand-maſter's conſent, to accept of the next offers the ſultan ſhould make. He did not let them wait long: for the fear he was in of a freſh ſuccour from Europe, the intrepidity of the knights, and the ſhame of being forced to raiſe the ſiege, prevailed upon him to hang out his pacific flag, which was quickly anſwered by another on the Rhodian ſide; upon which the Turks, coming out of their trenches, delivered up the ſultan's letter for the grand-maſter, to the grand-prior of St Giles, and the engineer Martinengo. The terms offered in it by Solyman appeared ſo advantageous, that they immediately exchanged hoſtages; and the knights that were ſent to him had the honour to be introduced to him, and to hear them confirmed by his own mouth, though not without threats of putting all to fire and ſword in caſe of refuſal, or even delay. Two ambaſſadors were forthwith ſent to him, to demand a truce of three days to ſettle the capitulation and intereſts of the inhabitants, who were part Greeks and part Latins; but this was abſolutely refuſed by the impatient monarch, out of a ſuſpicion of the rumoured ſuccour being near, and that the truce was only to gain time till it was come.

He therefore ordered the hoſtilities to be renewed with

Rhodes.

with fresh fury; in which the Rhodians made a most noble defence, considering their small number, and that they had now only the barbican or false bray of the bastion of Spain left to defend themselves, and once more repulsed the enemy: at which the sultan was so enraged, that he resolved to overpower them by numbers on the next day; which was, after a stout defence, so effectually done, that they were forced to abandon that outwork, and retire into the city. In the meanwhile, the burghers, who had but a day or two before raised a fresh uproar against the grand-master, under pretence that he was going to give them up a prey to an infidel who regarded neither oaths nor solemn treaties, perceiving their own danger, came now to desire him to renew the negociations, and only begged the liberty of sending one of their deputies along with his, to secure their interests in the capitulation. He readily consented to it; but gave them a charge to show the bashaw Achmed the treaty formerly concluded between Bajazet and his predecessor d'Aubusson, in which the former had entailed a dreadful curse on any of his successors that should infringe it. This was done, in hopes that the showing it to his master, who valued himself so much upon his strict observance of his law, might produce some qualm in him which might lengthen the agreement, for they were still as much in hopes of a succour from Europe as he was in fear of it; but to their great surprise, Achmed had no sooner perused than he tore it all in pieces, trampled it under his feet, and in a rage ordered them to be gone. The grand-master found no other resource than to send them back to him the next day; when that minister, who knew his master's impatience to have the affair concluded, quickly agreed with them upon the terms, which were in substance as follow:

1. That the churches should not be profaned. 2. That the inhabitants should not be forced to part with their children to be made janissaries. 3. That they should enjoy the free exercise of their religion. 4. That they should be free from taxes during five years. 5. That those who had a mind to leave the island should have free leave to do so. 6. That if the grand-master and his knights had not a sufficient number of vessels to transport themselves and their effects into Candia, the sultan should supply that defect. 7. That they should have 12 days allowed them, from the signing of the articles, to send all their effects on board. 8. That they should have the liberty of carrying away their relics, chalices, and other sacred utensils belonging to the great church of St John, together with all their ornaments and other effects. 9. That they should likewise carry with them all the artillery with which they were wont to arm the galleys of the order. 10. That the islands belonging to it, together with the castle of St Peter, should be delivered up to the Turks. 11. That, for the more easy execution of these articles, the Turkish army should be removed at some miles distance from the capital. 12. That the aga of the janissaries, at the head of 4000 of his men, should be allowed to go and take possession of the place.

From this time the island of Rhodes has been subject to the Turks; and, like other countries subject to that tyrannical yoke, has lost its former importance. The air is good, and the soil fertile, but ill cultivated. The capital is surrounded with triple walls and double ditches, and is looked upon to be impregnable. It is inhabited by Turks and Jews; the Christians being obliged to occupy the suburbs, as not being allowed to stay in the town during the night. The town is situated in E. Long. 28. 25. N. Lat. 36. 54.

RHODIOLA, ROSE-WORT, in botany: A genus of the octandria order, belonging to the dicœcia class of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The male calyx is quadripartite; the corolla tetrapetalous. The female calyx is quadripartite, and there is no corolla; the nectaria are four; the pistils four; and there are four polyspermous capsules. There are two species, the rosea and the minor: the first grows naturally in the clefts of the rocks and rugged mountains of Wales, Yorkshire, and Westmoreland. It has a very thick fleshy root, which when cut or bruised sends out an odour like roses. It has thick succulent stalks, like those of orpine, about nine inches long, closely garnished with thick succulent leaves indented at the top. The stalk is terminated by a cluster of yellowish herbaceous flowers, which have an agreeable scent, but are of short continuance. The second sort is a native of the Alps, and has purplish flowers which come out later than the former; it is also of a smaller size. Both species are easily propagated by parting their roots; and require a shady situation, and dry undunged soil. The fragrance of the first species, however, is greatly diminished by cultivation.

OIL OF RHODIUM. See ASPALATHUS.

RHODODENDRON, DWARF ROSE-BAY, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking under the 18th order, *Bicornes*. The calyx is quinquepartite; the corolla funnel-shaped; the stamina declining; the capsule quinquelocular. There are seven species: the most remarkable of which are, 1. The hirsutum, with naked hairy leaves, grows naturally on the Alps and several mountains of Italy. It is a low shrub, which seldom rises two feet high, sending out many ligneous branches covered with a light-brown bark, garnished closely with oval spear-shaped leaves, sitting pretty close to the branches. They are entire, having a great number of fine iron-coloured hairs on their edges and underside. The flowers are produced in bunches at the end of the branches in May, having one funnel-shaped petal cut into five obtuse segments, and of a pale-red colour. They make a good show, and are succeeded by oval capsules, containing ripe seeds in August. 2. The ferrugineum, with smooth leaves, hairy on their underside, is a native of the Alps and Apennines. It rises with a shrubby stalk near three feet high, sending out many irregular branches covered with a purplish bark, and closely garnished with smooth spear-shaped entire leaves, whose borders are reflexed backward; the upper side is of a light lucid green, their under side of an iron colour. The flowers are produced at the ends of the branches, are funnel-shaped, cut into five segments, and of a pale rose colour. These plants are propagated by seeds; but, being natives of barren rocky soils and cold situations, they do not thrive in gardens, and for want of their usual covering of snow in the winter are often killed by frost in this country. 3. The chamæcistus, or ciliated-leaved dwarf rose-bay, is a low deciduous shrub, native of Mount Baldus, and near Saltzburg in Germany. It grows

Rhododendron.

grows to the height of about a yard; the branches are numerous, produced irregularly, and covered with a purplish bark. The leaves are oval, spear-shaped, small, and in the under surface of the colour of iron. The flowers are produced at the end of the branches in bunches, are of a wheel-shaped figure, pretty large, of a fine crimson colour, and handsome appearance. They appear in June, and are succeeded by oval capsules containing ripe seeds in September. 4. The Dauricum, or Dauriau dwarf rose-bay, is a low deciduous shrub, and native of Dauria. Its branches are numerous, and covered with a brownish bark. The flowers are wheel-shaped, large, and of a beautiful rose-colour: they appear in May, and are succeeded by oval capsules full of seeds, which in England do not always ripen. 5. The maximum, or American mountain laurel, is an evergreen shrub, and native of Virginia, where it grows naturally on the highest mountains, and on the edges of cliffs, precipices, &c. where it reaches the size of a moderate tree, though with us it seldom rises higher than six feet. The flowers continue by succession sometimes more than two months, and are succeeded by oval capsules full of seeds. 6. The Ponticum, or Pontic dwarf rose-bay, is an evergreen shrub, native of the east, and of most shady places near Gibraltar. It grows to the height of four or five feet. The leaves are spear-shaped, glossy on both sides, acute, and placed on short foot-stalks on the branches: the flowers, which are produced in clusters, are bell-shaped, and of a fine purple colour. They appear in July, and are succeeded by oval capsules containing seeds, which in England seldom attain to maturity.

In Siberia, a species of this plant is used with great success in gouty and rheumatic affections; of which the following account is given in the 5th volume of the Medical Commentaries, p. 434. in a letter from Dr Guthrie of Petersburgh to Dr Duncan of Edinburgh. "It is the rhododendrum chrysanthemum, nova species, belonging to the class of decandria, discovered by Professor Pallas in his tour through Siberia. This Alpine shrub grows near the tops of the high mountains named *Sajanes*, in the neighbourhood of the river Jenise in Siberia; and delights in the skirts of the snow-covered summits, above the region that produces trees. When the inhabitants of that country mean to exhibit it in arthritic or rheumatic disorders, they take about two drams of the dried shrub, stalk and leaves, with nine or ten ounces of boiling water, and putting them into an earthen pot, they lute on the head, and place them in an oven during the night. This infusion (for it is not allowed to boil) the sick man drinks next morning for a dose. It occasions heat, together with a degree of intoxication, resembling the effects of spirituous liquors, and a singular kind of uneasy sensation in the parts affected, accompanied with a sort of vermiculatio, which is likewise confined to the diseased parts. The patient is not permitted to quench the thirst which this medicine occasions; as fluids, particularly cold water, produce vomiting, which lessens the power of the specific. In a few hours, however, all the disagreeable effects of the dose disappear, commonly with two or three stools. The patient then finds himself greatly relieved of his disorder; and has seldom occasion to repeat the medicine above two or three times to complete a cure. The inhabitants of Siberia call this shrub *chai* or *tea*, from their drinking, in common, a weak infusion of it, as we do the Chinese plant of that name. This practice shows that the plant, used in small quantities, must be innocent. Professor Pallas informs me, that he sent some time ago some of this shrub dried to Professor Koelpin at Stetin; and he showed me a letter from that gentleman, where he says, that he has given it with success in several cases, particularly in what he calls the *arthritica venerea*, with a tophus arthriticus on the carpus, and it produced a complete cure. It must be remarked, that the dose which these hardy Siberians take, who are also in the habit of drinking it as tea, would, in all probability, be too strong for our countrymen; however, it is a medicine which we may certainly give with safety, beginning with small doses."

Rhœa || Rhopola.

RHŒA. See Rhea.

RHŒADEÆ (*rhœas*, Linnæus's name, after Dioscorides, for the red poppy), the name of the 27th order in Linnæus's fragments of a natural method, consisting of poppy and a few genera which resemble it in habit and structure. See Botany, p. 462.

RHOMBOIDES, in geometry, a quadrilateral figure whose opposite sides and angles are equal, but is neither equilateral nor equiangular.

Rhomboides, in anatomy, a thin, broad, and obliquely square fleshy muscle, situated between the basis of the scapula and the spina dorsi; so called from its figure. Its general use is to draw backward and upward the subspinal portion of the basis scapulæ.

RHOMBUS, in geometry, an oblique-angled parallelogram, or quadrilateral figure, whose sides are equal and parallel, but the angles unequal, two of the opposite ones being obtuse and two acute.

RHONE, one of the largest rivers in France, which, rising among the Alps of Switzerland, passes through the lake of Geneva, visits that city, and then runs southwest to Lyons; where, joining the river Soane, it continues its course due south, passing by Orange, Avignon, and Arles, and falls into the Mediterranean a little above Marseilles.

RHOPIUM, in botany: A genus of the triandria order, belonging to the gynandria class of plants; and in the natural method ranking with those that are doubtful. The calyx is monophyllous and [illegible]; there is no corolla nor any stamina; the three antheræ are each attached to one of the styli; the capsule is tricoccous and sexlocular, each containing two seeds. There is only one species, *viz.* the meborea, a native of Guiana. This is a shrub rising about three or four feet in height. The flowers grow in the form of a corymbus; they are of a yellowish green colour; the capsules are black.

RHOPOLA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking with those that are doubtful. There is no calyx; the petals are four, oblong, obtuse, and narrowing at the base; the stamina are four, inserted in the corolla, and have large antheræ; the seed-vessel unilocular, and contains one seed. There is only one species, *viz.* the montana. This is a shrubby plant growing in Guiana, and remarkable for the great number of branches [illegible] its trunk in every direction, and for the [illegible] in the wood and bark of this plant.

Rhubarb || Rhus.

RHUBARB. See RHEUM.

RHUMB, in navigation, a vertical circle of any given place, or intersection of such a circle with the horizon; in which last sense rhumb is the same with a point of the compass.

Rhumb-Line is also used for the line which a ship describes when sailing in the same collateral point of the compass, or oblique to the meridians.

RHUS, SUMACH, in botany: A genus of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 43d order, *Dumosæ*. The calyx is quinquepartite; the petals five; the berry monospermous. There are 24 species, of which the most remarkable are,

1. The coriaria, or elm-leaved sumach, grows naturally in Italy, Spain, Turkey, Syria, and Palestine. The branches of this tree are used instead of oak-bark for tanning of leather; and it is said that the Turkey leather is all tanned with this shrub. It has a ligneous stalk, which divides at bottom into many irregular branches, rising to the height of eight or ten feet; the bark is hairy, of an herbaceous brown colour; the leaves are winged, composed of seven or eight pair of lobes, terminated by an odd one, bluntly sawed on their edges, hairy on their under side, of a yellowish-green colour, and placed alternately on the branches; the flowers grow in loose panicles on the end of the branches, which are of a whitish herbaceous colour, each panicle being composed of several spikes of flowers sitting close to the footstalks. The leaves and seeds of this sort are used in medicine, and are esteemed very restringent and styptic.

2. The typhinum, Virginian sumach, or vinegar plant, grows naturally in almost every part of North America. This hath a woody stem, with many irregular branches, which are generally crooked and deformed. The young branches are covered with a soft velvet-like down, resembling greatly that of a young stag's horn, both in colour and texture, from whence the common people have given it the appellation of *stag's horn*; the leaves are winged, composed of six or seven pair of oblong heart-shaped lobes, terminated by an odd one, ending in acute points, hairy on their underside, as is also the midrib. The flowers are produced in close tufts at the end of the branches, and are succeeded by seeds, inclosed in purple woolly succulent covers; so that the bunches are of a beautiful purple colour in autumn; and the leaves, before they fall in autumn, change to a purplish colour at first, and before they fall to a feuille-mort. This plant, originally a native of North America, has been long cultivated in the north of Germany, and is lately introduced into Russia. It has got the name of the *vinegar plant* from the double reason of the young germen of its fruit, when fermented, producing either new or adding to the strength of old weak vinegar, whilst its ripe berries afford an agreeable acid, which might supply the place when necessary of the citric acid. The powerful astringency of this plant in all its parts recommends it as useful in several of the arts. As for example, the ripe berries boiled with alum make a good dye for hats. The plant in all its parts may be used as a succedaneum for oak-bark in tanning, especially the white glove leather. It will likewise answer to prepare a dye for black, green, and yellow colours; and with martial vitriol it makes a good ink. The milky juice that flows from incisions made in the trunk or branches, makes when dried the basis of a varnish little inferior to the Chinese. Bees are remarkably fond of its flowers; and it affords more honey than any of the flowering shrubs, so that it may prove a useful branch of economy, where rearing these insects is an object. The natives of America use the dried leaves as tobacco.

3. The glabrum, with winged leaves, grows naturally in many parts of North America; this is commonly titled by the gardeners *New England sumach*. The stem of this is stronger and rises higher than that of the former; the branches spread more horizontally; they are not quite so downy as those of the last, and the down is of a brownish colour; the leaves are composed of many more pair of lobes, which are smooth on both sides; the flowers are disposed in loose panicles, which are of an herbaceous colour.

4. The Carolinianum, with sawed winged leaves, grows naturally in Carolina; the seeds of this were brought from thence by the late Mr Catesby, who has given a figure of the plant in his Natural History of Carolina. This is by the gardeners called the *scarlet Carolina sumach*; it rises commonly to the height of seven or eight feet, dividing into many irregular branches, which are smooth, of a purple colour, and pounced over with a greyish powder, as are also the footstalks of the leaves. The leaves are composed of seven or eight pair of lobes, terminated by an odd one; these are not always placed exactly opposite on the midrib, but are sometimes alternate. The upper side of the lobes are of a dark green, and their under hoary, but smooth. The flowers are produced at the end of the branches in very close panicles, which are large, and of a bright red colour.

5. The Canadense, with winged spear-shaped leaves, grows naturally in Canada, Maryland, and several other parts of North America. This hath smooth branches of a purple colour, covered with a grey pounce. The leaves are composed of seven or eight pair of lobes, terminated by an odd one; the lobes are spear-shaped, sawed on their edges, of a lucid green on their upper surface, but hoary on their under, and are smooth. The flowers are produced at the end of the branches in large panicles, which are composed of several smaller, each standing upon separate footstalks; they are of a deep red colour, and the whole panicle is covered with a grey pounce, as if it had been scattered over them.

6. The copallinum, or narrow-leaved sumach, grows naturally in most parts of North America, where it is known by the title of *beach sumach*, probably from the place where it grows. This is of humbler growth than either of the former, seldom rising more than four or five feet high in Britain, dividing into many spreading branches, which are smooth, of a light brown colour, closely garnished with winged leaves, composed of four or five pair of narrow lobes, terminated by an odd one; they are of a light green on both sides, and in autumn change purplish. The midrib, which sustains the lobes, has on each side a winged or leafy border, which runs from one pair of lobes to another, ending in joints at each pair, by which it is easily distinguished from the other sorts. The flowers are produced in loose panicles at the end of the branches, of a yellowish herbaceous colour.

These six sorts are hardy plants, and will thrive in the open air here. The first and fourth sorts are not quite so hardy as the others, so must have a better situation, otherwise their branches will be injured by severe frost in the winter. They are easily propagated by seeds, which if sown in autumn the plants will come up the following spring; but if they are sown in spring, they will not come up till the next spring; they may be either sown in pots, or the full ground. If they are sown in pots in autumn, the pots should be placed under a common frame in winter, where the seeds may be protected from hard frost; and in the spring, if the pots are plunged into a very moderate hot-bed, the plants will soon rise, and have thereby more time to get strength before winter. When the plants come up, they must be gradually hardened to bear the open air, into which they should be removed as soon as the weather is favourable, placing them where they may have the morning sun; in the summer, they must be kept clean from weeds, and in dry weather watered. Toward autumn it will be proper to stint their growth by keeping them dry, that the extremity of their shoots may harden; for if they are replete with moisture, the early frosts in autumn will pinch them, which will cause their shoots to decay almost to the bottom if the plants are not screened from them. If the pots are put under a common frame in autumn, it will secure the plants from injury: for while they are young and the shoots soft, they will be in danger of suffering, if the winter proves very severe; but in mild weather they must always enjoy the open air, therefore should never be covered but in frost. The spring following, just before the plants begin to shoot, they should be shaken out of the pots, and carefully separated, so as not to tear the roots; and transplanted into a nursery, in rows three feet asunder, and one foot distance in the rows. In this nursery they may stand two years to get strength, and then may be transplanted where they are to remain.

7. Besides these, Linnæus has included in this genus the toxicodendron or poison-tree, under the name of *rhus vernix* or *poison-ash*. This grows naturally in Virginia, Pensylvania, New England, Carolina, and Japan, rising with a strong woody stalk to the height of 20 feet and upwards; though in this country it is seldom seen above 12, by reason of the plants being extremely tender. The bark is brown, inclining to grey; the branches are garnished with winged leaves composed of three or four pair of lobes terminated by an odd one. The lobes vary greatly in their shape, but for the most part they are oval and spear-shaped. The footstalks become of a bright purple towards the latter part of summer, and in autumn all the leaves are of a beautiful purple before they fall off.

All the species of sumach abound with an acrid milky juice, which is reckoned poisonous; but this property is most remarkable in the vernix. The most distinct account of it is to be found in Professor Kalm's Travels in North America. "An incision (says he) being made into the tree, a whitish yellow juice, which has a nauseous smell, comes out between the bark and the wood. This tree is not known for its good qualities, but greatly so for the effect of its poison; which, tho' it is noxious to some people, yet does not in the least affect others. And therefore one person can handle the tree as he pleases, cut it, peel off its bark, rub it or the wood upon his hands, smell at it, spread the juice upon his skin, and make more experiments, with no inconvenience to himself: another person, on the contrary, dares not meddle with the tree while its wood is fresh; nor can he venture to touch a hand which has handled it, nor even to expose himself to the smoke of a fire which is made with this wood, without soon feeling its bad effects; for the face, the hands, and frequently the whole body, swells excessively, and is affected with a very acute pain. Sometimes bladders or blisters arise in great plenty, and make the sick person look as if he was infected by a leprosy. In some people the external thin skin, or cuticle, peels off in a few days, as is the case when a person has scalded or burnt any part of his body. Nay, the nature of some persons will not even allow them to approach the place where the tree grows, or to expose themselves to the wind when it carries the effluvia or exhalations of this tree with it, without letting them feel the inconvenience of the swelling which I have just now described. Their eyes are sometimes shut up for one, or two, or more days together, by the swelling. I know two brothers, one of whom could without danger handle this tree in what manner he pleased, whereas the other could not come near it without swelling. A person sometimes does not know that he has touched this poisonous plant, or that he has been near it, before his face and hands show it by their swelling. I have known old people who were more afraid of this tree than of a viper; and I was acquainted with a person who, merely by the noxious exhalations of it, was swelled to such a degree, that he was as stiff as a log of wood, and could only be turned about in sheets.

"I have tried experiments of every kind with the poison-tree on myself. I have spread its juice upon my hands, cut and broke its branches, peeled off its bark, and rubbed my hands with it, smelt at it, carried pieces of it in my bare hands, and repeated all this frequently, without feeling the baneful effects so commonly annexed to it; but I, however, once experienced, that the poison of the sumach was not entirely without effect upon me. On a hot day in summer, as I was in some degree of perspiration, I cut a branch of the tree, and carried it in my hand for about half an hour together, and smelt at it now and then. I felt no effects from it in the evening. But next morning I awoke with a violent itching of my eye-lids and the parts thereabouts; and this was so painful, that I could hardly keep my hands from it. It ceased after I had washed my eyes for a while with very cold water. But my eye-lids were very stiff all that day. At night the itching returned; and in the morning when I awoke, I felt it as ill as the morning before, and I used the same remedy against it. However, it continued almost for a whole week together; and my eyes were very red, and my eye-lids were with difficulty moved during all that time. My pain ceased entirely afterwards. About the same time I had spread the juice of the tree very thick upon my hand. Three days after, they occasioned blisters, which soon went off without affecting me much. I have not experienced any thing more of the effects of this plant, nor had I any desire so to do. However, I found that it could not exert its power upon me when I was not perspiring.

"I have never heard that the poison of this sumach has

has been mortal, but the pain ceases after a few days duration. The natives formerly made their flutes of this tree, because it has a great deal of pith. Some people assured me, that a person suffering from its noisome exhalations, would easily recover by spreading a mixture of the wood burnt to charcoal, and hog's lard, upon the swelled parts. Some asserted, that they had really tried this remedy. In some places this tree is rooted out, on purpose that its poison may not affect the workmen."

The natives are said to distinguish this tree in the dark by its extreme coldness to the touch. The juice of some kinds of sumach, when exposed to the heat of the sun, becomes so thick and clammy, that it is used for bird-lime, and the inspissated juice of the poison-ash is said to be the fine varnish of Japan. A cataplasm made with the fresh juice of the poison-ash, applied to the feet, is said by Hughes, in his Natural History of Barbadoes, to kill the vermin called by the West Indians *chigers*. Very good vinegar is made from an infusion of the fruit of an American sumach, which for that reason is called the *vinegar-tree*. The resin called *gum copal* is from the rhus copallinum. See COPAL.

RHYME, RHIME, *Ryme*, or *Rime*, in poetry, the similar sound or cadence and termination of two words which end two verses, &c. Or rhyme is a similitude of sound between the last syllable or syllables of a verse, succeeding either immediately or at a distance of two or three lines. See POETRY, n. 177, &c.

RHYMER (Thomas the), was a native of the parish of Earlstown, in the county of Berwick. His real name and title was Sir Thomas Learmont. He lived at the west end of Earlstown, where part of his house is still standing, called *Rhymer's Tower*; and there is a stone built in the fore wall of the church with this inscription on it,

Auld Rhymer's race lies in this place.

He lived in the 13th century, and was contemporary with one of the earls of March, who lived in the same place.

RHYTHM, in music, the variety in the movement, as to the quickness or slowness, length or shortness, of the notes. Or it may be defined more generally, the proportion which the parts of the motion have to each other.

RIAL, or RYAL, a Spanish coin. See MONEY-*Table*.

RIAL, or *Royal*, is also the name of a piece of gold anciently current among us for 10 s.

RIBAN, or RIBBAN, in heraldry, the eighth part of a bend. See HERALDRY, p. 447.

RIBAND, or RIBBON, a narrow sort of silk, chiefly used for head-ornaments, badges of chivalry, &c.

In order to give our readers an idea of the manner in which this curious and valuable branch of manufactures is managed, a view of the ribbon-weaver at his loom is represented in Plate CCCCXXXV. where, 1. Is the frame of the loom. 2. The castle, containing 48 pulleys. 3. The branches, on which the pulleys turn. 4. The tires, or the riding-cords, which run on the pulleys, and pull up the high-lisses. 5. The list-sticks, to which the high-lisses are tied. 6. The high-lisses, or lists, are a number of long threads, with loops, or plate-leads, at the bottom; and ringlets, or loops, about their middle, through which the cords or cross-threads of the ground-harness ride. 7. The plate-leads, or platines, are flat pieces of lead, of about six inches long, and three or four inches broad at the top, but round at the bottom; some use black slates instead of them: their use is to pull down those lisses which the workman had raised by the treddle, after his foot is taken off. 8. The branches or cords of the ground harness, which go thro' the loops in the middle of the high-lisses: on the well-ordering of these cords chiefly depends the art of ribbon-weaving, because it is by means of this contrivance that the weaver draws in the thread or silk that makes the flower, and rejects or excludes the rest. 9. The batton: this is the wooden frame that holds the reed or shuttle, and beats or closes the work: where, observe, that the ribbon-weaver does not beat his work; but as soon as the shuttle is passed, and his hand is taken away, the batton is forced, by a spring from the top, to beat the work close. 10. The shuttle, or reed. 11. The spring of the batton, by which it is made to close the work. 12. The long-harness are the front-reeds, by which the figure is raised. 13. The linguas are the long pieces of round or square lead, tied to the end of each thread of the long-harness to keep them tight. 14. The broad piece of wood, about a foot square, leaning somewhat forward, intended to ease the weaver as he stoops to his shuttle; it is fixed in the middle of the breast-beam. Some weavers, instead of this, have a contrivance of a cord or rope that is fastened to the front-frame, and comes across his breast; this is called a *slopfall*. 15. The seat-bench; this leans forward very much. 16. The foot-step to the treddles. 17. The breast-beam, being a cross-bar that passes from one of the standards to the other, so as to front the workman's breast: to this breast-bar is fixed a roll, upon which the ribbon passes in its way to be rolled upon the roller, that turns a little below. 18. The clamps, or pieces of wood, in which the broaches that confine the treddles rest. 19. The treddles are long narrow pieces of wood, to the ends of which the cords that move the lisses are fastened. 20. The treddle-cords are only distinguished from the riding-cords by a board full of holes, which divide them, in order to prevent the plate-leads, which are tied to the high-lisses, from pulling them too high when the workman's foot is off the treddle: which stop is made by a knot in the treddle-cord, too big to be forced through that hole in the board. 21. The lames are two pieces of thin narrow boards, only used in plain works, and then to supply the place of the long-harness. 22. The knee-roll, by which the weaver rolls up his ribbon as he sees proper, or by bit and bit as it is finished. 23. The back-rolls, on which the warp is rolled. It is to be observed, that there is always as many rolls as colours in the work to be wove. 24. The clamps, which support the rollers. 25. The returning-sticks, or, as others call them, the *returns*, or the *tumblers*, or *pulleys*, to which the tiers are tied, to clear the course of cords through the high-lisses. 26. The catch-board for the tumblers. 27. The tire-board. 28. The buttons for the knee-rolls and treddle-board, described in number 20.

Ribbons of all sorts are prohibited from being imported.

RIBANDS (from *rib* and *band*), in naval architecture,

ture, long narrow flexible pieces of timber, nailed upon the outside of the ribs, from the stem to the stern-post, so as to envelope the ship lengthwise, and appear on her side and bottom like the meridians on the surface of the globe. The ribands being judiciously arranged with regard to their height and distance from each other, and forming regular sweeps about the ship's body, will compose a kind of frame, whose interior surface will determine the curve of all the intermediate or filling-timbers which are stationed between the principal ones. As the figure of the ship's bottom approaches to that of a conoid, and the ribands have a limited breadth, it is apparent that they cannot be applied to this convex surface without forming a double curve, which will be partly vertical and partly horizontal; so that the vertical curve will increase by approaching the stem, and still more by drawing near the stern-post. It is also evident, that by deviating from the middle line of the ship's length, as they approach the extreme breadth at the midship-frame, the ribands will also form an horizontal curve. The lowest of these, which is termined upon the stem and stern-post, at the height of the rising-line of the floor, and answers to the upper part of the floor-timber upon the midship-frame, is called the *floor-riband*. That which coincides with the wing-transom, at the height of the lower-deck upon the midship-frame, is termed the *breadth riband*; all the rest, which are placed between these two, are called *intermediate ribands*. See SHIP-BUILDING.

RIBES, the CURRANT and GOOSEBERRY-BUSH: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 36th order, *Pomaceæ*. There are five petals, and stamina inserted into the calyx; the style is bifid; the berry polyspermous, inferior.

The currant and the gooseberry were long considered each as a separate genus; *ribes* the currant, and *grossularia* the gooseberry; but they are now joined together, the grossularia being made a species of *ribes*; all the currant kinds having inermous or thornless branches, and racemous clusters of flowers and fruit; and the gooseberry have spinous branches, and flowers and fruit for the most part singly.

There are three species of the currant-tree, two of which, and their varieties, merit culture for their fruit; the other as a plant of variety or observation: all of which are inermous or unarmed, having no thorns on the branches.

1. Rubrum, common red-currant tree, &c. hath a shrubby stem, dividing low into many branches, forming a bushy head, five or six feet high or more, without thorns; broad trilobate leaves, and smooth pendulous clusters of plane greenish flowers, succeeded by small clusters of berries. It grows naturally in woods and the hedges in most parts of Europe, and comprises all sorts of red and white currants; as, common small red currant—large bunched red currant—Champaigne pale-red currant—common small white currant—large white Dutch currant—yellow blotched-leaved currant—silver striped leaved—gold striped leaved—gooseberry-leaved. All these sorts are varieties of one species, *ribes rubrum*, or common red currant; it being the parent from which all the others were first obtained from the seed, and improved by culture. They all flower in the spring, and the fruit ripens in June and July; and by having the trees in different situations and modes of training, such as plantations of standards in the open quarters for the general supply, others trained against walls or pales of different aspect, the fruit may be continued ripe in good perfection from about the middle of June until November, provided the later crops are defended with mats or nets from the birds.

2. The nigrum, or black currant tree, hath a shrubby stem, dividing low into many branches, forming a bushy head five or six feet high; broad trilobate leaves of a rank odour, and having racemous clusters of oblong greenish flowers, succeeded by thin clusters of black berries. The fruit of this species being of a strong flavour, and somewhat physical relish, is not generally liked; it, however, is accounted very wholesome: there is also made of it a syrup of high estimation for sore throats and quinsies; hence the fruit is often called *squinancy berries*. There is a variety called the *Pennsylvanian black currant*, having smaller shoots and leaves, not strong scented, and small fruit but of little value; so the shrub is esteemed only for variety and shrubberies. The mode of bearing of all the varieties of currants is both in the old and young wood all along the sides of the branches and shoots, often upon a sort of small sprigs and twigs, producing the fruit in numerous long pendulous clusters.

3. The grossularia, or common gooseberry bush, rises with a low shrubby stem, dividing low into a very branchy bushy head, armed with spines; trilobate smallish leaves, having hairy ciliated footstalks; and small greenish flowers, succeeded by hairy berries. It consists of many varieties, of different sizes and colours.

4. The reclinatum, or reclinated broad-leaved gooseberry-bush, rises with a low shrubby stem, and reclinated somewhat prickly branches, trilobate broadish leaves, and small greenish flowers, having the pedunculi furnished with triphyllous bractea.

5. The oxyacanthoides, or oxyacantha-leaved gooseberry, hath a shrubby stem, and branches armed on all sides with spines, and largish trilobate hawthorn leaves.

6. The uva crispa, or smooth gooseberry, hath a shrubby stem, and branches armed with spines; trilobate leaves; pedicles having monophyllous bractea; and smooth fruit.

7. The cynosbati, or prickly-fruited gooseberry bush, hath a shrubby stem and branches, armed with spines, mostly at the axillas, and prickly fruit in clusters.

All the above seven species of ribes, both currants and gooseberry kinds, and their respective varieties, are very hardy shrubs, that prosper almost anywhere, both in open and shady situations, and in any common soil; bearing plentifully in any exposure, though in open sunny situations they produce the largest and fairest fruit, ripening to a richer vinous flavour; but it is eligible to plant them in different situations and aspects, in order to have the fruit as early and late as possible.

They are commonly planted in the kitchen-garden, mostly as dwarf standards, in the open quarters, for the general supply; being disposed sometimes in continued plantations in rows, eight or ten feet by six asunder, where great quantities of the fruit are required for market or other large supplies; and are sometimes disposed in single ranges round the outward edge

edge of the quarters, eight feet asunder; frequently in single cross rows, in order to divide the ground into separate wide plats or breaks, of from 20 to 30 or 40 feet wide, which also serves to shelter the ground a little in winter; in all of which methods of planting them as standards, they should be generally trained up to a single stem about a foot high, then suffered to branch out every way all around into bushy heads, keeping the middle, however, open, and the branches moderately thin, to admit the sun and free air; though if some are fanned, that is, trimmed on two sides oppositely, so as to make the other branches range in a line like an espalier, they will take up much less of the ground, and, by admitting the sun and air more freely, they will produce large fair fruit. They are likewise trained against walls or palings, like other wall-trees, but principally some of the large red and white Dutch currants, in which they will produce fine large fruit, and those against any south fence will ripen early, and be high flavoured; but it is proper to plant a few both against south, north, east, and west walls, in order to obtain the fruit ripe both early and late, in a long succession. It is also proper to plant a few of the finest sorts of gooseberries against a warm fence, both to have early green gooseberries for tarts, &c. as well as to ripen early; and they will grow very large and fine. Sometimes both currants and gooseberries are also trained in low espaliers for variety, and they produce very fine fruit.

The fruits both of the currant and gooseberry are of an acid and cooling nature, and as such are sometimes used in medicine, especially the juice reduced to a jelly by boiling with sugar. From the juice of currants also a very agreeable wine is made.

RICAUT, or Rycaut (Sir Paul), an eminent English traveller, of the time of whose birth we find no account; but in 1661, he was appointed secretary to the earl of Winchelsea, who was sent ambassador extraordinary to the Ottoman Porte. During his continuance in that station, he wrote, "The present State of the Ottoman Empire, in three books, containing the maxims of the Turkish policy, their religion, and military discipline," London, folio, 1670. He afterwards resided 11 years as consul at Smyrna, where, at the command of Charles II. he composed "The present state of the Greek and Armenian Churches, *anno Christi* 1678." On his return, Lord Clarendon being appointed lord-lieutenant of Ireland, made him his principal secretary for Leinster and Connaught: king James II. knighted him; and made him one of the privy council in Ireland, and judge of the court of admiralty; all which he held to the Revolution. He was employed by King William as resident at the Hanse-towns in Lower Saxony, where he continued for ten years; but being worn out with age and infirmities, he obtained leave to return in 1700, and died the same year. Ricaut continued "Knolles's History of the Turks, and Platina's Lives of the Popes;" besides which, there are some other productions under his name.

RICCIA, in botany: A genus of the natural order of algæ, belonging to the cryptogamia class of plants. There is no calyx, but a vesicular cavity within the substance of the leaf. There is no corolla; the antheræ are cylindrical, and sessile, placed on the germen, which is turbinated; the style is filiform, perforating the anthera; and the seed-case is spherical, crowned with the withered anthera; the seeds are hemispherical and pedicellated.

RICE. See Oryza. "Rice *bras*, (says Mr Marsden) whilst in the husk, is in India called *paddee*, and assumes a different name in each of its other various states. We observe no distinction of this kind in Europe, where our grain retains through all its stages, till it becomes flour, its original name of barley, wheat, or oats. The following, beside many others, are names applied to rice, in its different stages of growth and preparation: *paddee*, original name of the seed: *oossay*, grain of last season: *bunnee*, the plants before removed to the sawoors: *bras* or *bray*, rice, the husk of the paddee being taken off: *charroop*, rice cleaned for boiling; *nassee*, boiled rice: *peerang*, yellow rice: *jambar*, a service of rice, &c.

Among people whose general objects of contemplation are few, those which do of necessity engage their attention, are often more nicely discriminated than the same objects among more enlightened people, whose ideas ranging over the extensive field of art and science, disdain to fix long on obvious and common matters. *Paddee*, on Sumatra and the Malay islands, is distinguished into two sorts; *Laddang* or up-land paddee, and *Sawoor* or low-land, which are always kept separate, and will not grow reciprocally. Of these the former bears the higher price, being a whiter, heartier, and better flavoured grain, and having the advantage in point of keeping. The latter is much more prolific from the seed, and liable to less risk in the culture, but is of a watery substance, produces less increase in boiling, and is subject to a swifter decay. It is, however, in more common use than the former. Beside this general distinction, the paddee of each sort, particularly the Laddang, presents a variety of species, which, as far as my information extends, I shall enumerate, and endeavour to describe. The common kind of dry ground paddee: colour, light brown: the size rather large, and very little crooked at the extremity. Paddee *undallong:* dry ground: short round grain: grows in whorles or bunches round the stock. Paddee *ebbass:* dry ground: large grain: common. Paddee *galloo:* dry ground: light coloured: scarce. Paddee *jennee:* dry ground: deep coloured; small grain: scarce. Paddee *ejoo:* dry ground; light coloured. Paddee *koening:* dry ground: deep yellow: fine rice: crooked, and pointed. Paddee *coocoor ballum:* dry ground: much esteemed: light coloured; small, and very much crooked, resembling a dove's nail, from whence its name. Paddee *pesang:* dry ground: outer coat light brown; inner red: longer, smaller, and less crooked than the *coocoor ballum*. Paddee *Santong:* the finest sort that is planted in wet ground: small, straight, and light coloured. In general it may be observed that the larger grained rice is the least esteemed, and the smaller and whiter the most prized. In the Lampoon country they make a distinction of paddee *crawang* and paddee *jerroo;* the former of which is a month earlier in growth than the latter."

Rice-Bird. See Oryzivera.

Rice-Bunting. See Emberiza.

RICHARD I. II. and III. kings of England. See England.

RICHARDIA, in botany: A genus of the monogynia order, belonging to the hexandria class of plants; and

and in the natural method ranking under the 47th order, *Stellatæ*. The calyx is sexpartite; the corolla monopetalous, and subcylindrical; and there are three seeds.

RICHARDSON (Samuel), a celebrated English sentimental novel-writer, born in 1688, was bred to the business of a printer, which he exercised all his life with eminence. Though he is said to have understood no language but his own, yet he acquired great reputation by his three epistolary novels, intitled *Pamela*, *Clarissa*, and *Sir Charles Grandison*; which show an uncommon knowledge of human nature. His purpose being to promote virtue, his pictures of moral excellence are by much too highly coloured; and he has described his favourite characters such rather as we might wish them to be, than as they are to be found in reality. It is also objected by some, that his writings have not always the good effect intended: for that, instead of improving natural characters, they have fashioned many artificial ones; and have taught delicate and refined ladies and gentlemen to despise every one but their own self-exalted persons. But after all that can be urged of the ill effects of Mr Richardson's novels on weak minds, eager to adopt characters they can only burlesque; a sensible reader will improve more by studying such models of perfection, than of those nearer to the natural standard of human frailty, and where those frailties are artfully exaggerated so as to fix and misemploy the attention on them. A stroke of the palsy carried off Mr Richardson, after a few days illness, upon the 4th of July 1761. He was a man of fine parts, and a lover of virtue; which, for aught we have ever heard to the contrary, he showed in his life and conversation as well as in his writings. Besides the works above-mentioned, he is the author of an Æsop's Fables, a Tour through Britain, 4 vols, and a volume of Familiar Letters upon business and other subjects. He is said from his childhood to have delighted in letter-writing; and therefore was the more easily led to throw his romances into that form; which, if it enlivens the history in some respects, yet lengthens it with uninteresting prate, and formalities that mean nothing, and on that account is sometimes found a little tedious and fatiguing.

The most eminent writers of our own country, and even of foreign parts, have paid their tribute to the transcendant talents of Mr Richardson, whose works have been published in almost every language and country of Europe. They have been greatly admired, notwithstanding every dissimilitude of manners, or every disadvantage of translation. M. Diderot, a late celebrated French author, speaking of the means employed to move the passions, in his Essay on Dramatic Poetry, mentions Richardson as a perfect master of that art: "How striking (says he), how pathetic, are his descriptions! His personages, though silent, are alive before me; and of those who speak, the actions are still more affecting than the words."—The famous John-James Rousseau, speaking, in his letter to M. d'Alembert, of the novels of Richardson, asserts, "that nothing was ever written equal to, or even approaching them, in any language."—Mr Aaron Hill calls his Pamela a "delightful nursery of virtue."—Dr Warton speaks thus of Clementina: "Of all representations of madness, that of Clementina, in the History of Sir Charles Grandison, is the most deeply interesting. I know not whether even the madness of Lear is wrought up, and expressed, by so many little strokes of nature and passion. It is absolute pedantry to prefer and compare the madness of Orestes in Euripides to this of Clementina."—Dr Johnson, in his Introduction to the 97th number of the Rambler, which was written by Mr Richardson, observes, that the reader was indebted for that day's entertainment to an author, "from whom the age has received greater favours, who has enlarged the knowledge of human nature, and taught the passions to move at the command of virtue;" and, in his Life of Rowe, he says, "The character of Lothario seems to have been expanded by Richardson into that of Lovelace; but he has excelled his original in the moral effect of the fiction. Lothario, with gaiety which cannot be hated, and bravery which cannot be despised, retains too much of the spectator's kindness. It was in the power of Richardson alone to teach us at once esteem and detestation; to make virtuous resentment overpower all the benevolence which wit, and elegance, and courage, naturally excite; and to lose at last the hero in the villain."—Dr Young very pertinently observed, that Mr Richardson, with the mere advantages of nature, improved by a very moderate progress in education, struck out at once, and of his own accord, into a new province of writing, in which he succeeded to admiration. And what is more remarkable, that he not only began, but finished, the plan on which he set out, leaving no room for any one after him to render it more complete: and that not one of the various writers that have ever since attempted to imitate him, have in any respect equalled, or at all approached near him. This kind of romance is peculiarly his own; and "I consider him (continues the Doctor) as a truly great natural genius; as great and supereminent in his way as Shakespeare and Milton were in theirs."

RICHARDSON (Jonathan), a celebrated painter of heads, was born about the year 1665, and against his inclination was placed by his father-in-law apprentice to a scrivener, with whom he lived six years; when obtaining his freedom by the death of his master, he followed the bent of his disposition, and at 20 years old became the disciple of Riley; with whom he lived four years, whose niece he married, and of whose manner he acquired enough to maintain a solid and lasting reputation, even during the lives of Kneller and Dahl; and to remain at the head of the profession when they went off the stage. *Walpole's Anecdotes of Painting in England.*

There is strength, roundness, and boldness in his colouring; but his men want dignity, and his women grace. The good sense of the nation is characterised in his portraits. You see he lived in an age when neither enthusiasm nor servility were predominant. Yet with a pencil so firm, possessed of a numerous and excellent collection of drawings, full of the theory, and profound in reflections on his art, he drew nothing well below the head, and was void of imagination. His attitudes, draperies, and back-grounds, are totally insipid and unmeaning; so ill did he apply to his own practice the sagacious rules and hints he bestowed on others. Though he wrote with fire and judgment, his paintings owed little to either. No man dived deeper into the inexhaustible stores of Raphael, or was more smitten with the native lustre of Vandyck. Yet though capable

Richardson. ble of tasting the elevation of the one and the elegance of the other, he could never contrive to see with their eyes, when he was to copy nature himself. One wonders that he could comment their works so well, and imitate them so little.

He quitted business himself some years before his death; but his temperance and virtue contributed to protract his life to a great length in the full enjoyment of his understanding, and in the felicity of domestic friendship. He had had a paralytic stroke that affected his arm, yet never disabled him from his customary walks and exercise. He had been in St James's Park, and died suddenly at his house in Queen's-square on his return home, May 28. 1745, when he had passed the 80th year of his age. He left a son and four daughters, one of whom was married to his disciple Mr Hudson, and another to Mr Grigson an attorney. The taste and learning of the son, and the harmony in which he lived with his father, are visible in the joint works they composed. The father in 1719 published two discourses: 1. An Essay on the whole Art of Criticism as it relates to Painting; 2. An Argument in behalf of the Science of a Connoisseur; bound in one volume octavo. In 1722 came forth An Account of some of the statues, bas-reliefs, drawings, and pictures, in Italy, &c. with Remarks by Mr Richardson, senior and junior. The son made the journey; and from his notes, letters, and observations, they both at his return compiled this valuable work. As the father was a formal man, with a slow, but loud and sonorous voice, and, in truth, with some affectation in his manner; and as there is much singularity in his style and expression, these peculiarities (for they were scarcely foibles) struck superficial readers, and between the laughers and the envious the book was much ridiculed. Yet both this and the former are full of matter, good sense, and instruction: and the very quaintness of some expressions, and their laboured novelty, show the difficulty the author had to convey mere visible ideas through the medium of language. Those works remind one of Cibber's inimitable treatise on the stage: when an author writes on his own profession, feels it profoundly, and is sensible his readers do not, he is not only excusable, but meritorious, for illuminating the subject by new metaphors or bolder figures than ordinary. He is the coxcomb that sneers, not he that instructs, in appropriated diction.

If these authors were censured when conversant within their own circle, it was not to be expected that they would be treated with milder indulgence when they ventured into a sister region. In 1734, they published a very thick octavo, containing explanatory notes and remarks on Milton's Paradise Lost, with the life of the author, and a discourse on the poem. Again were the good sense, the judicious criticisms, and the sentiments that broke forth in this work, forgotten in the singularities that distinguish it. The father having said in apology for being little conversant in classic literature, that he had looked into them through his son, Hogarth, whom a quibble could furnish with wit, drew the father peeping through the nether end of a telescope, with which his son was perforated at a Virgil aloft on a shelf. Yet how forcibly Richardson entered into the spirit of his author, appears from his comprehensive expression, that *Milton was an ancient, born two thousand years after his time.* Richardson, however, was as incapable of reaching the sublime or harmonious in poetry, as he was in painting, though so capable of illustrating both. Some specimens of verse that he has given us here and there in his works, excite no curiosity for more, though he informs us in his Milton, that if painting was his wife, poetry had been his secret concubine. It is remarkable, that another commentator of Milton has made the same confession,

—— Sunt & mihi carmina, me quoque dicunt
Vatem pastores —— ——

says Dr Bentley. Neither the doctor nor the painter add *sed non ego credulus illis*, though all their readers are ready to supply it for both. Besides his pictures and commentaries, we have a few etchings by his hand, particularly two or three of Milton, and his own head. The sale of his collection of drawings, in February 1747, lasted 18 days, and produced about 2060 l. his pictures about 700 l. Hudson his son-in-law bought many of the drawings.

RICHELET (Cæsar Peter), a French writer, born in 1631 at Chemin in Champagne. He was the friend of Patru and Ablancourt; and like them applied himself to the study of the French language with success. He compiled a dictionary of that language, full of new and useful remarks; but exceptionable, as containing many satirical reflections and obscenities. The best edition is that of Lyons, 3 vols folio, 1728. He also collected a small dictionary of rhymes, and composed some other pieces in the grammatical and critical way. He died in 1698.

RICHES, a word used always in the plural number, means wealth, money, possession, or a splendid sumptuous appearance. When used to express the fortune of private persons, whether patrimonial or acquired, it signifies *opulencea;* term which expresses not the enjoyment, but the possession, of numerous superfluities.—The riches of a state or kingdom expresses the produce of industry, of commerce, of different incorporated bodies, of the internal and external administration of the principal members of which the society is composed, &c.

Our Saviour says, that it is more easy for a camel to go through the eye of a needle, than for a rich man to enter the kingdom of heaven; and we find, in fact, that riches frequently bring along with them a degree of inattention, lukewarmness, and irreligion, such as sufficiently confirms the divine assertion; which is merely a general truth, and which by no means asserts the absolute impossibility of being virtuous and rich at the same time. For as the ancient philosophers wisely taught, riches, considered in themselves, and abstractedly from the bad purposes to which they may be applied, are not necessarily incompatible with virtue and wisdom. They are indeed absolutely indifferent; in good hands they will be useful, and promote the cause of truth, virtue, and humanity; and in bad hands they are the source of much mischief; on the one hand they confer the power of doing much good, and on the other they are equally powerful in doing ill.

To men, however, whose principles of virtue are not sufficiently founded, riches are unquestionably a dangerous and seducing bait; and as the ancients rightly taught, they are to the greatest number of men, in an infinite

infinite variety of circumſtances, a powerful obſtacle to the practice of moral virtues, to the progreſs of truth, and a weight which prevents them from riſing to that degree of knowledge and perfection of which human nature is capable. They multiply without ceaſing the occaſions of vice, by the facility which they give to ſatisfy a multitude of irregular paſſions, and to turn at length thoſe who are attached to them from the road of virtue, and from the deſire of inquiring after truth.

It is this which Seneca means to expreſs, when he ſays, "that riches in a vaſt number of caſes have been a great obſtacle to philoſophy; and that, to enjoy freedom of mind neceſſary for ſtudy, a man muſt live in poverty, or as if he were poor. Every man (adds he) who wiſhes to lead a pleaſant, tranquil, and ſecure life, muſt avoid, as much as poſſible, the deceitfulneſs of riches, which are a bait with which we allow ourſelves to be taken as in a ſnare, without afterwards having the power to extricate ourſelves, being ſo much the more unhappy, that we believe we poſſeſs them, while, on the contrary, they tyrrannize over us." *Senec. Epiſt.* 17. and *Epiſt.* 8.

"The wiſe man (ſays the ſame author in another place) does not love riches to exceſs, but he would not chooſe wholly to diveſt himſelf of them; he does not receive them into his ſoul, but into his houſe; he is careful of them, and employs them for the purpoſe of opening a wide field for virtue, and of making it appear in all its ſplendor. Who can doubt that a wiſe man has not more occaſions of diſplaying the elevation and greatneſs of his mind when he is poſſeſſed of riches than when he labours under indigence, ſince, in the laſt condition, he can exerciſe only one virtue, namely, reſignation; whereas, riches give him an opportunity of diſplaying, in their greateſt luſtre, the virtues of temperance, liberality, diligence, regularity, and magnificence. There is no occaſion, then, to prohibit philoſophers from the uſe of wealth, or to condemn wiſdom to poverty. The philoſopher may poſſeſs the greateſt riches, provided he has not employed force or ſhed blood in acquiring them; provided he has not gained them by unjuſt or illegal means; in a word, provided the uſe which he makes of them be as pure as the ſource from which they were derived, and no perſon (the envious excepted) regretting his poſſeſſion; he will not refuſe the kindneſs of fortune, and will enjoy, without ſhame or pride, the wealth acquired by honeſt means; he will have more reaſon to glory, if, after expoſing his riches to the view of the whole world, he can deſire any perſon to carry away the reward of treachery or the fruits of oppreſſion. If, after theſe words, his riches continue undiminiſhed, this man is truly great, and worthy to be rich. If he has not allowed to enter into his poſſeſſion the ſmalleſt piece of money gained by unwarrantable means, neither will he refuſe the greateſt riches, which are the bleſſings of fortune, and the fruit of virtue: if he can be rich, he will chooſe to be ſo, and he ſhall have riches; but he will regard them as bleſſings of uncertain poſſeſſion, and of which he may be every moment deprived; he will not permit them to be a load to himſelf or to others; he will give them to the good, or to thoſe whom he would make good; but he will give them with the niceſt wiſdom, taking care always to diſtribute them to the moſt worthy, and to thoſe who remember that they muſt give an account, as well of the wealth which they receive from heaven, as of the purpoſes to which it is applied." *Senec. de Vita Beata*, cap. 21, 22, & 23.

Richlieu.

RICHLIEU (John Armand du Pleſſis de), cardinal of Richlieu and Fronſac, biſhop of Lucon, &c. was born at Paris in 1585. He was of excellent parts; and at the age of 22 had the addreſs to obtain a diſpenſation to enjoy the biſhopric of Lucon in 1607. Returning into France, he applied himſelf in a particular manner to the function of preaching; and his reputation this way procured him the office of almoner to the queen Mary de Medicis. His abilities in the management of affairs advanced him to be ſecretary of ſtate in 1616; and the king ſoon gave him the preference to all his other ſecretaries. The death of the marquis d'Ancre having produced a revolution in ſtate affairs, Richlieu retired to Avignon; where he employed himſelf in compoſing books of controverſy and piety. The king having recalled him to court, he was made a cardinal in 1622; and, two years after, firſt miniſter of ſtate, and grand maſter of the navigation. In 1626, the iſle of Rhée was preſerved by his care, and Rochelle taken, having ſtopped up the haven by that famous dyke which he ordered to be made there. He accompanied the king to the ſiege of Cazal, and contributed not a little to the raiſing of it in 1629. He alſo obliged the Huguenots to the peace at Alets, which proved the ruin of that party; he took Pamerol, and ſuccoured Cazal beſieged by Spinola. In the mean time the nobles found fault with his conduct, and perſuaded the king to diſcard him. The cardinal, for his part, was unmoved with it; and by his reaſonings overthrew what was thought to be determined againſt him; ſo that, inſtead of being diſgraced, he from that moment became more powerful than ever. He puniſhed all his enemies in the ſame manner as they would have had him ſuffer; and the day which produced this event, ſo glorious to cardinal Richlieu, was called the *day of dupes*. This able miniſter had from thenceforwards an aſcendancy over the king's mind; and he now reſolved to humble the exceſſive pride of the houſe of Auſtria. For that purpoſe he concluded a treaty with Guſtaphus Adolphus king of Sweden, for carrying the war into the heart of Germany. He alſo entered into a league with the duke of Bavaria; ſecured Lorrain; raiſed a part of the princes of the empire againſt the emperor; treated with the Dutch to continue the war againſt Spain; favoured the Catalans and Portuguefe till they ſhook off the Spaniſh yoke; and, in ſhort, took ſo many different meaſures, that he accompliſhed his deſign; and after having carried on the war with ſucceſs, was thinking of concluding it by a peace, when he died at Paris on the 4th of December 1642, aged 58. He was interred in the Sorbonne, where a magnificent mauſoleum is erected to his memory. This great politician made the arts and ſciences flouriſh; formed the botanical garden at Paris, called the *king's garden*; founded the French academy; eſtabliſhed the royal printing-houſe; erected the palace afterwards called *Le Palais Royal*, which he preſented to the king; and rebuilt the Sorbonne with a magnificence that appears truly royal. Beſides his books of controverſy and piety, there go under the name of this miniſter, A Journal, in 2 vols 12mo; and a Political Teſtament, in 12mo; all treating of politics and ſtate affairs. Cardi-

Ricinus

nal Mazarine purſued Richlieu's plan, and completed many of the ſchemes which he had begun, but left unfiniſhed.

RICINUS, or PALMA CHRISTI, in botany: A genus of the monodelphia order, belonging to the monoecia claſs of plants; and in the natural method ranking under the 38th order, *Tricocca*. The male calyx is quinquepartite; there is no corolla; the ſtamina numerous. The female calyx is tripartite; there is no corolla, but three bifid ſtyles, with a trilocular capſule, and a ſingle ſeed. There are three ſpecies, of which the moſt remarkable is the communis, or common palma Chriſti. This tree is of ſpeedy growth, as in one year it arrives at its full height, which ſeldom exceeds 20 feet. The trunk is ſubligneous; the pith is large; the leaves broad and palmated; the flower ſpike is ſimple, and thickly ſet with yellow bloſſoms in the ſhape of a cone; the capſules are triangular and prickly, containing three ſmooth gray mottled ſeeds. When the bunches begin to turn black, they are gathered, dried in the ſun, and the ſeeds picked out. They are afterwards put up for uſe as wanted, or for exportation.

N. London Medical Journal, vol. viii. part iii. p. 278. Plate ccccxxxvii.

Caſtor oil is obtained either by expreſſion or by decoction. The firſt method is practiſed in England; the latter in Jamaica. It is common firſt to parch the nuts or ſeeds in an iron pot over the fire; but this gives the oil an empyreumatic taſte, ſmell, and colour; and it is beſt prepared in this manner: A large iron pot or boiler is firſt prepared, and half filled with water. The nuts are then beaten in parcels in deep wooden mortars, and after a quantity is beaten it is thrown into the iron veſſel. The fire is then lighted, and the liquor is gently boiled for two hours, and kept conſtantly ſtirred. About this time the oil begins to ſeparate, and ſwims on the top, mixed with a white froth, and is ſkimmed off till no more riſes. The ſkimmings are heated in a ſmall iron pot, and ſtrained through a cloth. When cold, it is put up in jars or bottles for uſe.

Caſtor oil, thus made, is clear and well flavoured, and if put into proper bottles will keep ſweet for years. The expreſſed caſtor oil ſoon turns rancid, becauſe the mucilaginous and acrid parts of the nut are ſqueezed out with the oil. On this account the preference is given to well prepared oil by decoction. An Engliſh gallon of the ſeeds yield about two pounds of oil, which is a great proportion.

Before the diſturbances in America, the planters imported train oil for lamps and other purpoſes about ſugar works. It is now found that the caſtor oil can be procured as cheap as the fiſh oil of America: it burns clearer, and has not any offenſive ſmell. This oil, too, is fit for all the purpoſes of the painter, or for the apothecary in ointments and plaſters. As a medicine, it purges without ſtimulus, and is ſo mild as to be given to infants ſoon after birth, to purge off the meconium. All oils are noxious to inſects, but the caſtor oil kills and expels them. It is generally given as a purge after uſing the cabbage bark ſome days. In conſtipation and belly-ach this oil is uſed with remarkable ſucceſs. It ſits well on the ſtomach, allays the ſpaſm, and brings about a plentiful evacuation by ſtool, eſpecially if at the ſame time fomentations, or the warm bath, are uſed.—Belly-ach is at preſent leſs frequent in Jamaica than formerly, owing to ſeveral cauſes. The inhabitants, in general, live better, and drink better liquors; but the exceſſive drinking of new rum ſtill makes it frequent amongſt ſoldiers, ſailors, and the lower order of white people. It has been known to happen too from viſceral obſtructions after intermittents, or marſh fevers, in Jamaica.

The ricinus Americanus grows as tall as a little tree, and is ſo beautiful that Millar ſays it deſerves a place in every curious garden, and he planted it himſelf at Chelſea. It expands into many branches; the leaves are ſometimes two feet in diameter, and the ſtem as large as a middle-ſized broom ſtaff; towards the top of the branch it has a cluſter of flowers, ſomething reſembling a bunch of grapes; the flowers are ſmall and ſtaminous, but on the body of the plant grow bunches of rough triangular huſks, each containing three ſpeckled ſeeds, generally ſomewhat leſs than horſe beans; the ſhell is brittle, and contains white kernels of a ſweet, oily, and nauſeous taſte. From this kernel the oil is extracted, and if the medicine ſhould become officinal, the ſeeds may be imported at a reaſonable rate, as the plant grows wild and in great plenty in all the Britiſh and French American iſlands. See *OLEUM Palmæ Chriſti*. Of the ricinus communis there are a great many varieties; all of them fine majeſtic plants, annual, or at moſt biennial, in this country; but in their native ſoil they are ſaid to be perennial both in root and ſtem. They are propagated by ſeeds ſown on a hot-bed, and require the ſame treatment as other tender exotics.

RICKETS, in medicine. See there, n° 347.

RICOCHET, in gunnery, is when guns, howitzers, or mortars, are loaded with ſmall charges, and elevated from 5 to 12 degrees, ſo as to fire over the parapet, and the ſhot or ſhell rolls along the oppoſite rampart: it is called *ricochet-firing*, and the batteries are likewiſe called *ricochet-batteries*. This method of firing was firſt invented by M. Belidor, and firſt uſed at the ſiege of Ath in 1697. This mode of firing out of mortars was firſt tried in 1723 at the military ſchool at Straſbourg, and with ſucceſs. At the battle of Roſbach, in 1757, the king of Pruſſia had ſeveral 6-inch mortars made with trunnions, and mounted on travelling-carriages, which fired obliquely on the enemy's lines, and amongſt their horſe, loaded with 8 ounces of powder, and at an elevation of one degree 15 minutes, which did great execution; for the ſhells rolling along the lines, with burning fuzes, made the ſtouteſt of the enemy not wait for their burſting.

RICOTIA, in botany: A genus of the ſiliquoſa order, belonging to the tetradynamia claſs of plants; and in the natural method ranking under the 39th order, *Siliquoſæ*. The ſiliqua is unilocular, oblong, and compreſſed, with plain valvules.

RIDGE, in agriculture, a long piece of riſing land between two furrows. See AGRICULTURE, n° 111.

RIDGLING, or RIDGEL, among farriers, &c. the male of any beaſt that has been but half-gelt.

RIDICULE, in matters of literature, is that ſpecies of writing which excites contempt with laughter.

The *ridiculous*, however, differs from the *riſible*, (ſee RISIBLE.) A riſible object produceth an emotion of laughter merely: a ridiculous object is improper as well as riſible; and produceth a mixed emotion, which is vented by a laugh of deriſion or ſcorn.

Burleſque, though a great engine of ridicule, is not confined to that ſubject; for it is clearly diſtinguiſhable into burleſque that excites laughter merely, and burleſque

Ridicule. burlesque that provokes derision or ridicule. A grave subject in which there is no impropriety, may be brought down by a certain colouring so as to be risible; which is the case of *Virgil Travestie*, and also the case of the *Secchia Repita*; the authors laugh first, in order to make their readers laugh. The *Lutrin* is a burlesque poem of the other sort, laying hold of a low and trifling incident, to expose the luxury, indolence, and contentious spirit of a set of monks. Boileau, the author, gives a ridiculous air to the subject, by dressing it in the heroic style, and affecting to consider it as of the utmost dignity and importance. In a composition of this kind, no image professedly ludicrous ought to find quarter, because such images destroy the contrast; and accordingly the author shows always the grave face, and never once betrays a smile.

Limits of ridicule.

Though the burlesque that aims at ridicule produces its effects by elevating the style far above the subject, yet it has limits beyond which the elevation ought not to be carried: the poet, consulting the imagination of his readers, ought to confine himself to such images as are lively and readily apprehended: a strained elevation, soaring above an ordinary reach of fancy, makes not a pleasant impression: the reader, fatigued with being always upon the stretch, is soon disgusted; and, if he persevere, becomes thoughtless and indifferent.—Further, a fiction gives no pleasure unless it be painted in colours so lively as to produce some perception of reality; which never can be done effectually where the images are formed with labour or difficulty. For these reasons, we cannot avoid condemning the *Batrachomuomachia*, said to be the composition of Homer: it is beyond the power of imagination to form a clear and lively image of frogs and mice acting with the dignity of the highest of our species; nor can we form a conception of the reality of such an action, in any manner so distinct as to interest our affections even in the slightest degree.

The *Rape of the Lock* is of a character clearly distinguishable from those now mentioned; it is not properly a burlesque performance, but what may rather be termed *an heroi-comical poem*: it treats a gay and familiar subject with pleasantry, and with a moderate degree of dignity: the author puts not on a mask like Boileau, nor professes to make us laugh like Tassoni. The *Rape of the Lock* is a genteel species of writing, less strained than those mentioned; and is pleasant or ludicrous without having ridicule for its chief aim; giving way, however, to ridicule where it arises naturally from a particular character, such as that of Sir Plume. Addison's *Spectator* *, upon the exercise of the fan, is extremely gay and ludicrous, resembling in its subject the *Rape of the Lock*.

102.

There remains to show, by examples, the manner of treating subjects so as to give them a ridiculous appearance.

Il ne dit jamais, je vous donne, mais, je vous prete le bon jour. *Moliere.*

Orleans. I know him to be valiant.

Constable. I was told that by one that knows him better than you.

Orleans. What's he?

Constable. Marry, he told me so himself; and he said, he car'd not who knew it. *Henry V. Shakespeare.*

He never broke any man's head but his own, and that was against a post when he was drunk. *Ibid.*

Millamont. Sententious Mirabel! prithee don't look with that violent and inflexible wise face, like Solomon at the dividing of the child in an old tapestry-hanging. *Way of the World.*

A true critic, in the perusal of a book, is like a dog at a feast, whose thoughts and stomach are wholly set upon what the guests fling away, and consequently is apt to snarl most when there are the fewest bones. *Tale of a Tub.*

In the following instances, the ridicule arises from absurd conceptions in the persons introduced.

Mascarille. Te souvient-il, vicomte, de cette demi-lune, que nous emportames sur les enemis au siege d'Afras?

Jodelet. Que veux-tu dire avec ta demi-lune? c'etoit bien une lune tout entiere.

Moliere, les Precieuses Ridicules, sc. 11.

Slander. I came yonder at Eaton to marry Mrs Anne Page; and she's a great lubberly boy.

Page. Upon my life then you took the wrong—

Slander. What need you tell me that? I think so when I took a boy for a girl: if I had been married to him, for all he was in woman's apparel, I would not have had him. *Merry Wives of Windsor.*

Valentine. Your blessing, Sir.

Sir Sampson. You've had it already, Sir: I think I sent it you to-day in a bill for four thousand pound; a great deal of money, brother Foresight-

Foresight. Ay, indeed, Sir Sampson, a great deal of money for a young man; I wonder what he can do with it. *Love for Love*, act 2. sc. 7.

Millament. I nauseate walking; 'tis a country diversion; I lothe the country, and every thing that relates to it.

Sir Wilfull. Indeed, hah! look ye, look ye, you do? nay, 'tis like you may——here are choice of pastimes here in town, as plays and the like; that must be confess'd, indeed.

Millament. Ah l'etourdie! I hate the town too.

Sir Wilfull. Dear heart, that's much——hah! that you should hate 'em both! hah! 'tis like you may; there are some can't relish the town, and others can't away with the country——'tis like you may be one of these, Cousin. *Way of the World*, act 4. sc. 4.

Lord Froth. I assure you, Sir Paul, I laugh at nobody's jests but my own, or a lady's: I assure you, Sir Paul.

Brisk. How? how, my Lord? what, affront my wit? Let me perish, do I never say any thing worthy to be laugh'd at?

Lord Froth. O foy, don't misapprehend me, I don't say so, for I often smile at your conceptions. But there is nothing more unbecoming a man of quality than to laugh; 'tis such a vulgar expression of the passions! every body can laugh. Then especially to laugh at the jest of an inferior person, or when any body else of the same quality does not laugh with one; ridiculous! To be pleas'd with what pleases the crowd! Now, when I laugh I always laugh alone.

Double Dealer, act 1 sc. 4.

So

Ridicule.

So ſharp-ſighted is pride in blemiſhes, and ſo willing to be gratified, that it takes up with the very ſlighteſt improprieties: ſuch as a blunder by a foreigner in ſpeaking our language, eſpecially if the blunder can bear a ſenſe that reflects on the ſpeaker:

Quickly. The young man is an honeſt man.

Caius. What ſhall de honeſt man do in my cloſet? dere is no honeſt man dat ſhall come in my cloſet.

Merry Wives of Windſor.

Love ſpeeches are finely ridiculed in the following paſſage,

Quoth he, My faith as adamantine,
As chains of deſtiny, I'll maintain;
True as Apollo ever ſpoke,
Or oracle from heart of oak;
And if you'll give my flame but vent,
Now in cloſe hugger-mugger pent,
And ſhine upon me but benignly,
With that one and that other pigſney,
The ſun and day ſhall ſooner part
Than love, or you, ſhake off my heart;
The ſun, that ſhall no more diſpenſe
His own, but your bright influence:
I'll carve your name on barks of trees,
With true love-knots and flouriſhes;
That ſhall infuſe eternal ſpring,
And everlaſting flouriſhing:
Drink every letter on't in ſtum,
And make it briſk champaign become.
Where'er you tread, your foot ſhall ſet
The primroſe and the violet;
All ſpices, perfumes, and ſweet powders,
Shall borrow from your breath their odours;
Nature her charter ſhall renew
And take all lives of things from you;
The world depend upon your eye,
And, when you frown upon it, die.
Only our loves ſhall ſtill ſurvive,
New-worlds and natures to out-live;
And, like to herald's moons, remain
All creſcents, without change or wane.

Hudibras, part 2. *canto* 1.

Thoſe who have a talent for ridicule, which is ſeldom united with a taſte for delicate and refined beauties, are quick-ſighted in improprieties; and theſe they eagerly graſp, in order to gratify their favourite propenſity. Perſons galled are provoked to maintain that ridicule is improper for grave ſubjects. Subjects really grave are by no means fit for ridicule; but then it is urged againſt them, that, when called in queſtion whether a certain ſubject be really grave, ridicule is the only means of determining the controverſy. Hence a celebrated queſtion, Whether ridicule be or be not a teſt of truth?

On one ſide, it is obſerved, that the objects of ridicule are falſehood, incongruity, impropriety, or turpitude of certain kinds: but as the object of every excited paſſion muſt be examined by reaſon, before we can determine whether it be proper or improper; ſo ridicule muſt, apparently at leaſt, eſtabliſh the truth of the improprieties deſigned to excite the paſſion of contempt. Hence it comes in to the aid of argument and reaſon, when its impreſſions on the imagination are conſiſtent with the nature of things; but when it ſtrikes the fancy and affections with fictitious images, it becomes the inſtrument of deceit. But however ridicule may impreſs the idea of apparent turpitude or falſehood in the imagination, yet ſtill reaſon remains the ſupreme judge; and thus ridicule can never be the final teſt or touchſtone of truth and falſehood.

On the other ſide, it is contended that ridicule is not a ſubject of reaſoning, but of ſenſe or taſte; (ſee and compare the articles Risible and Congruity. Stating the queſtion, then, in more accurate terms, Whether the ſenſe of ridicule be the proper teſt for diſtinguiſhing ridiculous objects from what are not ſo? they proceed thus: No perſon doubts that our ſenſe of beauty is the true teſt of what is beautiful; and our ſenſe of grandeur, of what is great or ſublime. Is it more doubtful whether our ſenſe of ridicule be the true teſt of what is ridiculous? It is not only the true teſt, but indeed the only teſt; for this ſubject comes not, more than beauty or grandeur, under the province of reaſon. If any ſubject, by the influence of faſhion or cuſtom, have acquired a degree of veneration to which naturally it is not entitled, what are the proper means for wiping off the artificial colouring, and diſplaying the ſubject in its true light? A man of true taſte ſees the ſubject without diſguiſe; but if he heſitate, let him apply the teſt of ridicule, which ſeparates it from its artificial connections, and expoſes it naked with all its native improprieties.—But it is urged, that the graveſt and moſt ſerious matters may be ſet in a ridiculous light. Hardly ſo; for where an object is neither riſible nor improper, it lies not open in any quarter to an attack from ridicule.

RIDING, in general, ſignifies the being carried along on any vehicle.

Riding on horſeback. See Horsemanship.

Riding, in medicine. During this exerciſe all the viſcera are ſhaken, and preſſed againſt each other; at the ſame time the pure air acts with a greater force on the lungs. Weakly perſons, or thoſe whoſe ſtomachs are infirm, ſhould, however, be cautious of riding before their meals are ſomewhat digeſted.

Riding, in naval affairs, is the ſtate of a ſhip's being retained in a particular ſtation, by means of one or more cables with their anchors, which are for this purpoſe ſunk into the bottom of the ſea, &c. in order to prevent the veſſel from being driven at the mercy of the wind or current.—A rope is ſaid to *ride*, when one of the turns by which it is wound about the capſtern or windlaſs lies over another, ſo as to interrupt the operation of heaving.

Riding Athwart, the poſition of a ſhip which lies acroſs the direction of the wind and tide, when the former is ſo ſtrong as to prevent her from falling into the current of the latter.

Riding between the Wind and Tide, the ſituation of a veſſel at anchor, when the wind and tide act upon her in direct oppoſition, in ſuch a manner as to deſtroy the effort of each other upon her hull; ſo that ſhe is in a manner balanced between their reciprocal force, and rides without the leaſt ſtrain on her cables. When a ſhip does not labour heavily, or feel a great ſtrain when anchored in an open road or bay, ſhe is ſaid to ride eaſy. On the contrary, when ſhe pitches violently into the ſea, ſo as to ſtrain her cables, maſts, or hull, it is called *riding hard*, and the veſſel is termed a *bad roader*.

rounder. A ship is rarely said to *ride* when she is fastened at both the ends, as in a harbour or river, that situation being comprehended in the article MOORING.

RIDING, a district visited by an officer.—Yorkshire is divided into three ridings, viz. the east, west, and north ridings. In all indictments in that county, both the town and riding must be expressed.

RIDING, as connected with gardening, and susceptible of embellishment. See GARDENING.

A riding, though in extent differing so widely from a garden, yet agrees with it in many particulars: for, exclusive of that community of character which results from their being both improvements, and both destined to pleasure, a closer relation arises from the property of a riding, *to extend the idea of a seat*, and appropriate a whole country to the mansion; for which purpose it must be distinguished from common roads, and the marks of distinction must be borrowed from a garden. Those which a farm or a park can supply are faint and few; but whenever circumstances belonging to a garden occur, they are immediately received as evidence of the domain. The species of the trees will often be decisive: plantations of firs, whether placed on the sides of the way, or in clumps or woods in the view, denote the neighbourhood of a seat: even limes and horse-chesnuts are not indifferent; for they have always been frequent in improvements, and rare in the ordinary scenes of cultivated nature. If the riding be carried through a wood, the shrubs, which for their beauty or their fragrance have been transplanted from the country into gardens, such as the sweet-briar, the viburnum, the euonymus, and the wood-bine, should be encouraged in the underwood; and to these may be added several which are still peculiar to shrubberies, but which might easily be transferred to the wildest coverts, and would require no further care.

Where the species are not, the disposition may be particular, and any appearance of design is a mark of improvement. A few trees standing out from a hedge-row, raise it to an elegance above common rusticity: and still more may be done by clumps in a field; they give it the air of a park. A close lane may be decorated with plantations in all the little vacant spaces: and even the groups originally on the spot (whether it be a wood, a field, or a lane), if properly selected, and those only left which are elegant, will have an effect: though every beauty of this kind may be found in nature, yet many of them are seldom seen together, and never unmixed. The number and the choice are symptoms of design.

Another symptom is variety. If the appendages of the riding be different in different fields, if in a lane, or a wood, some distinguishing circumstance be provided for every bend; or when, carried over an open exposure, it winds to several points of view; if this be the conduct throughout, the intention is evident, to amuse the length of the way: variety of ground is also a characteristic of a riding, when it seems to have proceeded from choice; and pleasure being the pursuit, the changes of the scene both compensate and account for the circuity.

But a part undistinguished from a common road, succeeding to others more adorned, will by the contrast alone be sometimes agreeable; and there are beauties frequent in the high-way, and almost peculiar to it, which may be very acceptable in a riding: a green lane is always delightful; a passage winding between thickets of brambles and briars, sometimes with sometimes without a little spring-wood rising amongst them, or a cut in a continued sweep through the furze of a down or the fern of a heath, is generally pleasant. Nor will the character be absolutely lost in the interruption, it will soon be resumed, and never forgotten; when it has been once strongly impressed, very slight means will preserve the idea.

Simplicity may prevail the whole length of the way when the way is all naturally pleasant, but especially if it be a communication between several spots, which in character are raised above the rest of the country: A fine open grove is unusual, except in a park or a garden; it has an elegance in the disposition which cannot be attributed to accident, and it seems to require a degree of preservation beyond the care of mere husbandry. A neat railing on the edge of a steep which commands a prospect, alone distinguishes that from other points of view. A building is still more strongly characteristic: it may be only ornamental, or it may be accommodated to the reception of company; for though a place to alight at interrupts the range of a riding, yet, as the object of an airing, it may often be acceptable. A small spot which may be kept by the labour of one man, inclosed from the fields, and converted into a shrubbery or any other scene of a garden, will sometimes be a pleasing end to a short excursion from home: nothing so effectually extends the idea of a seat to a distance; and not being constantly visited, it will always retain the charms of novelty and variety.

When a riding is carried along a high road, a kind of property may in appearance be claimed even there, by planting on both sides trees equidistant from each other, to give it the air of an approach: regularity intimates the neighbourhood of a mansion. A village therefore seems to be within the domain, if any of the inlets to it are avenues: other formal plantations about it, and still more trivial circumstances, when they are evidently ornamental, sometimes produce and always corroborate such an effect; but even without raising this idea, if the village be remarkable for its beauty, or only for its singularity, a passage through it may be an agreeable incident in a riding.

The same ground which in the fields is no more than rough, often seems to be romantic when it is the site of a village; the buildings and other circumstances mark and aggravate the irregularity. To strengthen this appearance, one cottage may be placed on the edge of a steep, and some winding steps of unhewn stone lead up to the door; another in a hollow, with all its little appurtenances hanging above it. The position of a few trees will sometimes answer the same purpose; a foot-bridge here and there for a communication between the sides of a narrow dip, will add to the character; and if there be any rills, they may be conducted so as greatly to improve it.

A village which has not these advantages of ground, may, however, be beautiful; it is distinguished by its elegance, when the larger intervals between the houses are filled with open groves, and little clumps are introduced upon other occasions. The church often is, it generally may be, made a picturesque object. Even the cottages may be neat and sometimes grouped

Riding. with thickets. If the place be watered by a ſtream, the croſſings may be in a variety of pleaſing deſigns; and if a ſpring riſe, or only a well for common uſe be ſunk by the ſide of the way, a little covering over it may be contrived which ſhall at the ſame time be ſimple and pretty.

There are few villages which may not eaſily be rendered agreeable. A ſmall alteration in a houſe will ſometimes occaſion a great difference in the appearance. By the help of a few trifling plantations, the objects which have a good effect may be ſhown to advantage, thoſe which have not may be concealed, and ſuch as are ſimilar be diſguiſed. And any form which offends the eye, whether of ground, of trees, or of buildings, may ſometimes be broken by the ſlighteſt circumſtances, by an advanced paling, or only by a bench. Variety and beauty, in ſuch a ſubject, are rather the effects of attention than expence.

3 Of the buildings deſigned for objects in a riding.

But if the paſſage through the village cannot be pleaſant; if the buildings are all alike, or ſtand in unmeaning rows and ſimilar ſituations; if the place furniſhes no opportunities to contraſt the forms of dwellings with thoſe of out-houſes; to introduce trees and thickets; to interpoſe fields and meadows; to mix farms with cottages; and to place the ſeveral objects in different poſitions: yet on the outſide even of ſuch a village there certainly is room for wood; and by that alone the whole may be grouped into a maſs, which ſhall be agreeable when ſkirted by a riding; and ſtill more ſo when ſeen from a diſtance. The ſeparate farms in the fields, alſo, by planting ſome trees about them, or perhaps only by managing thoſe already on the ſpot, may be made very intereſting objects; or if a new one is to be built, beauty may be conſulted in the form of the houſe, and the diſpoſition of its appurtenances. Sometimes a character not their own, as the ſemblance of a caſtle or an abbey, may be given to them; they will thereby acquire a degree of conſideration, which they cannot otherwiſe be entitled to: and objects to improve the views are ſo important to a riding, that buildings muſt ſometimes be erected for that purpoſe only: but they ſhould be ſuch as by an actual effect adorn or dignify the ſcene; not thoſe little ſlight deceptions which are too well known to ſucceed, and have no merit if they fail: for though a fallacy ſometimes contributes to ſupport a character, or ſuggeſts ideas to the imagination, yet in itſelf it may be no improvement of a ſcene; and a bit of turret, the tip of a ſpire, and the other ordinary ſubjects of theſe frivolous attempts, are ſo inſignificant as objects, that whether they are real or fictitious is almoſt a matter of indifference.

4 Of a garden ſimilar in character to a riding.

The ſame means by which the proſpects from a riding are improved, may be applied to thoſe from a garden; though they are not eſſential to its character, they are important to its beauty; and wherever they abound, the extent only of the range which commands them, determines whether they ſhall be ſeen from a riding or a garden. If they belong to the latter, that aſſumes in ſome degree the predominant properties of the former, and the two characters approach very near to each other: but ſtill each has its peculiarities. Progreſs is a prevailing idea in a riding; and the pleaſantneſs of the way is, therefore, a principal conſideration: but particular ſpots are more attended to in a garden: and to them the communications ought to be ſubordinate; their direction muſt be generally accommodated, their beauties ſometimes ſacrificed to the ſituation and the character of the ſcenes they lead to; an advantageous approach to theſe muſt be preferred to an agreeable line for the walk; and the circumſtances which might otherwiſe become it are miſplaced, if they anticipate the openings: it ſhould ſometimes be contraſted to them; be retired and dark if they are ſplendid or gay, and ſimple if they are richly adorned. At other times it may burſt unexpectedly out upon them; not on account of the ſurpriſe, which can have its effect only once; but the impreſſions are ſtronger by being ſudden; and the contraſt is enforced by the quickneſs of the tranſition.

In a riding, the ſcenes are only the amuſements of the way, through which it proceeds without ſtopping: in a garden they are principal; and the ſubordination of the walk raiſes their importance. Every art, therefore, ſhould be exerted to make them ſeem parts of the place. Diſtant proſpects cannot be ſo; and the alienation does not offend us; we are familiarized to it; the extent forbids every thought of a cloſer connection; and if a continuation be preſerved between them and the points which command them, we are ſatisfied. But *home-views* ſuggeſt other ideas; they appear to be within our reach: they are not only beautiful in proſpect, and we can perceive that the ſpots are delightful; but we wiſh to examine, to inhabit, and to enjoy them. Every apparent impediment to that gratification is a diſappointment; and when the ſcenes begin beyond the opening, the conſequence of the place is lowered; nothing within it engages our notice: it is an exhibition only of beauties, the property of which does not belong to it; and that idea, though indifferent in a riding, which is but a paſſage, is very diſadvantageous to ſuch a reſidence as a garden. To obviate ſuch an idea, the points of view ſhould be made important; the objects within be appendages to thoſe without; the ſeparations be removed or concealed; and large portions of the garden be annexed to the ſpots which are contiguous to it. The ideal boundary of the place is then carried beyond the ſcenes which are thus appropriated to it; and the wide circuit in which they lie, and the different poſitions in which they may be ſhown, afford a greater variety than can generally be found in any garden, the ſcenery of which is confined to the incloſure.

5 Deſcription of Perſfield.

Perſfield (A) is not a large place; the park contains about 300 acres; and the houſe ſtands in the midſt of it. On the ſide of the approach, the inequalities of the ground are gentle, and the plantations pretty; but nothing there is great. On the other ſide, a beautiful lawn falls precipitately every way into a deep vale which ſhelves down the middle; the declivities are diverſified with clumps and with groves; and a number of large trees ſtraggle along the bottom. This lawn is encom-

5 paſſed

(A) The ſeat of Mr Morris, near Chepſtowe, in Monmouthſhire.

passed with wood; and through the wood are walks, which open beyond it upon those romantic scenes which surround the park, and which are the glory of Persfield. The Wye runs immediately below the wood: the river is of a dirty colour; but the shape of its course is very various, winding first in the form of a horse-shoe, then proceeding in a large sweep to the town of Chepstowe, and afterwards to the Severn. The banks are high hills; in different places steep, bulging out, or hollow on the sides; rounded, flattened, or irregular at top; and covered with wood, or broken by rocks. They are sometimes seen in front; sometimes in perspective; falling back for the passage, or closing behind the bend of the river; appearing to meet, rising above, or shooting out beyond one another. The wood which incloses the lawn crowns an extensive range of these hills, which overlook all those on the opposite shore, with the country which appears above or between them; and winding themselves as the river winds, their sides, all rich and beautiful, are alternately exhibited; and the point of view in one spot becomes an object to the next.

In many places the principal feature is a continued rock, in length a quarter of a mile, perpendicular, high, and placed upon a height. To resemble ruins is common to rocks: but no ruin of any single structure was ever equal to this enormous pile; it seems to be the remains of a city; and other smaller heaps scattered about it appear to be fainter traces of the former extent, and strengthen the similitude. It stretches along the brow which terminates the forest of Dean; the face of it is composed of immense blocks of stone, but not rugged; the top is bare and uneven, but not craggy; and from the foot of it, a declivity, covered with thicket, slopes gently towards the Wye, but in one part is abruptly broken off by a ledge of rocks, of a different hue, and in a different direction. From the grotto it seems to rise immediately over a thick wood, which extends down a hill below the point of view, across the valley through which the Wye flows, and up the opposite banks, hides the river, and continues without interruption to the bottom of the rock: from another seat it is seen by itself without even its base; it faces another, with all its appendages about it; and sometimes the sight of it is partially intercepted by trees, beyond which, at a distance its long line continues on through all the openings between them.

Another capital object is the castle of Chepstowe, a noble ruin of great extent; advanced to the very edge of a perpendicular rock, and so immediately rivetted into it, that from the top of the battlements down to the river seems but one precipice: the same ivy which overspreads the face of the one, twines and clusters among the fragments of the other; many towers, much of the walls, and large remains of the chapel, are standing. Close to it is a most romantic wooden bridge, very ancient, very grotesque, at an extraordinary height above the river, and seeming to abut against the ruins at one end, and some rocky hills at the other. The castle is so near to the alcove at Persfield, that little circumstances in it may be discerned; from other spots more distant, even from the lawn, and from a shrubbery on the side of the lawn, it is distinctly visible, and always beautiful, whether it is seen alone, or with the bridge, with the town, with more or with less of the rich meadows which lie along the banks of the Wye, to its junction three miles off with the Severn. A long sweep of that river also, its red cliffs, and the fine rising country in the counties of Somerset and Gloucester, generally terminate the prospect.

Most of the hills about Persfield are full of rocks; some are intermixed with hanging woods, and either advance a little before them, or retire within them, and are backed, or overhung, or separated by trees. In the walk to the cave, a long succession of them is frequently seen in perspective, all of a dark colour, and with wood in the intervals between them. In other parts the rocks are more wild and uncouth; and sometimes they stand on the tops of the highest hills; at other times down as low as the river; they are home-objects in one spot, and appear only in the back-ground of another.

The woods concur with the rocks to render the scenes of Persfield romantic: the place everywhere abounds with them; they cover the tops of the hills; they hang on the steeps; or they fill the depths of the valleys. In one place they front, in another they rise above, in another they sink below the point of view; they are seen sometimes retiring beyond each other, and darkening as they recede; and sometimes an opening between two is closed by a third at a distance beyond them. A point, called the *Lover's Leap*, commands a continued surface of the thickest foliage, which overspreads a vast hollow immediately underneath. Below the Chinese seat the course of the Wye is in the shape of a horse-shoe: it is on one side inclosed by a semicircular hanging wood; the direct steeps of a table-hill shut it in on the other; and the great rock fills the interval between them: in the midst of this rude scene lies the peninsula formed by the river, a mile at the least in length, and in the highest state of cultivation: near the isthmus the ground rises considerably, and thence descends in a broken surface, till it flattens to the water's edge at the other extremity. The whole is divided into corn-fields and pastures; they are separated by hedge-rows, coppices, and thickets; open clumps and single trees stand out in the meadows; and houses and other buildings, which belong to the farms, are scattered amongst them: nature so cultivated, surrounded by nature so wild, compose a most lovely landscape together.

The communications between these several points are generally by close walks; but the covert ends near the Chinese seat; and a path is afterwards conducted through the upper park to a rustic temple, which overlooks on one side some of the romantic views which have been described, and on the other the cultivated hills and valleys of Monmouthshire. To the rude and magnificent scenes of nature now succeeds a pleasant, fertile, and beautiful country, divided into inclosures, not covered with woods, nor broken by rocks and precipices, but only varied by easy swells and gentle declivities. Yet the prospect is not tame: the hills in it are high; and it is bounded by a vast sweep of the Severn, which is here visible for many miles together, and receives in its course the Wye and the Avon.

From the temple a road leads to the Windcliff, an eminence much above the rest, and commanding the whole in one view. The Wye runs at the foot of the hill; the peninsula lies just below; the deep bosom of the

Ridley. the ſemicircular hanging wood is full in ſight; over part of it the great rock appears; all its baſe, all its accompaniments, are ſeen; the country immediately beyond it is full of lovely hillocks; and the higher grounds in the counties of Somerſet and Glouceſter riſe in the horizon. The Severn ſeems to be, as it really is, above Chepſtowe, three or four miles wide; below the town it ſpreads almoſt to a ſea; the county of Monmouth is there the hither ſhore, and between its beautiful hills appear at a great diſtance the mountains of Brecknock and Glamorganſhire. In extent, in variety, and grandeur, few proſpects are equal to this. It comprehends all the noble ſcenes of Perſfield, encompaſſed by ſome of the fineſt country in Britain. See GARDENING.

RIDLEY (Nicholas), biſhop of London, and a martyr to the Reformation, was deſcended of an ancient family, and born in the beginning of the 16th century, at Wilmontſwick in Northumberland. From the grammar-ſchool at Newcaſtle upon Tyne, he was ſent to Pembroke-hall in Cambridge, in the year 1518, where he was ſupported by his uncle Dr Robert Ridley, fellow of Queen's college. In 1522 he took his firſt degree in arts; two years after, was elected fellow; and, in 1525, he commenced maſter of arts. In 1527, having taken orders, he was ſent by his uncle, for further improvement, to the Sorbonne at Paris; from thence he went to Louvain, and continued abroad till the year 1529. On his return to Cambridge, he was choſen under-treaſurer of the univerſity; and, in 1533, was elected ſenior proctor. He afterwards proceeded bachelor of divinity, and was choſen chaplain of the univerſity, orator, and *magiſter glomeriæ*. At this time he was much admired as a preacher and diſputant. He loſt his kind uncle in 1536; but was ſoon after patroniſed by Dr Cranmer, archbiſhop of Canterbury, who made him his domeſtic chaplain, and preſented him to the vicarage of Herne in Eaſt Kent; where, we are told, he preached the doctrine of the Reformation. In 1540, having commenced doctor of divinity, he was made king's chaplain; and, in the ſame year, was elected maſter of his college in Cambridge. Soon after, Ridley was collated to a prebend in the church of Canterbury; and it was not long before he was accuſed in the biſhop's court, at the inſtigation of biſhop Gardiner, of preaching againſt the doctrine of the Six Articles. The matter being referred to Cranmer, Ridley was acquitted. In 1545, he was made a prebendary of Weſtminſter abbey; in 1547 was preſented, by the fellows of Pembroke-hall, to the living of Soham, in the dioceſe of Norwich; and the ſame year was conſecrated biſhop of Rocheſter. In 1550 he was tranſlated to the ſee of London; in which year he was one of the commiſſioners for examining biſhop Gardiner, and concurred in his deprivation. In the year 1552, our prelate returning from Cambridge, unfortunately for himſelf, paid a viſit to the Princeſs, afterwards Queen Mary; to whom, prompted by his zeal for reformation, he expreſſed himſelf with too much freedom: for ſhe was ſcarcely ſeated on the throne when Ridley was doomed a victim to her revenge. With Cranmer and Latimer he was burnt alive at Oxford, on the 16th of October 1555. He wrote, 1. A treatiſe concerning images in churches. 2. Brief declaration of the Lord's Supper. 3. Certain godly and comfortable conferences between biſhop Ridley and Mr Hugh Latimer, during their impriſonment. 4. A compariſon between the comfortable doctrine of the Goſpel and the traditions of the Popiſh religion; and other works.

RIFLE, in gunnery. See GUNNERY, n° 36, *et ſeq.*

RIGA, a large, ſtrong, populous, and rich town of the Ruſſian empire, and capital of Livonia. It is a large trading place, and has a very conſiderable fortreſs; the trade is chiefly in corn, ſkins, leather, and naval ſtores. It was taken by the Ruſſians in 1710, after they had blocked it up a long while, during which the inhabitants were afflicted with the plague. The caſtle is ſquare, and defended by four towers and ſix baſtions; beſides which, it has a fine arſenal. The Proteſtants have ſtill a handſome college here. It is ſeated on a large plain on the river Dwina. E. Long. 24. 25. N. Lat. 57. 0.

RIGADOON, a gay and briſk dance, borrowed originally from Provence in France, and performed in figure by a man and woman.

RIGGING *of a* SHIP, a general name given to all the ropes employed to ſupport the maſts, and to extend or reduce the ſails, or arrange them to the diſpoſition of the wind. The former, which are uſed to ſuſtain the maſts, remain uſually in a fixed poſition, and are called *ſtanding rigging*; ſuch are the ſhrouds, ſtays, and back-ſtays. The latter, whoſe office is to manage the ſails, by communicating with various blocks or pulleys, ſituated in different places of the maſts, yards, ſhrouds, &c. are comprehended in the general term of *running rigging*; ſuch are the braces, ſheets, haliards, clue-lines, brails, &c.

In rigging a maſt, the firſt thing uſually fixed upon its head is a circular wreath or rope, called the *gromet*, or *collar*, which is firmly beat down upon the top of the hounds. The intent of this is to prevent the ſhrouds from being fretted or worn by the treſtle-trees, or ſhoulders of the maſt; after this are laid on the two pendants, from whoſe lower ends the main or fore tackles are ſuſpended; and next, the ſhrouds of the ſtarboard and larboard ſide, in pairs, alternately. The whole is covered by the ſtays, which are the largeſt ropes of the rigging.—When a yard is to be rigged, a gromet is alſo driven firſt on each of its extremities; next to this are fitted on the horſes, the braces, and laſtly the lifts or top-ſail ſheet-blocks.

The principal objects to be conſidered in rigging a ſhip. appear to be ſtrength, convenience, and ſimplicity: or, the properties of affording ſufficient ſecurity to the maſts, yards, and ſails; of arranging the whole machinery in the moſt advantageous manner, to ſuſtain the maſts, and facilitate the management of the ſails; and of avoiding perplexity, and rejecting whatever is ſuperfluous or unneceſſary. The perfection of this art, then, conſiſts in retaining all thoſe qualities, and in preſerving a judicious medium between them. See SHIP-BUILDING.

RIGHT, in geometry, ſignifies the ſame with ſtraight; thus, a ſtraight line is called a *right* one.

RIGHT is a title conferred, 1. Together with *Reverend*, upon all biſhops. 2. Together with *Honourable*, upon earls, viſcounts, and barons. 3. By courteſy, together with *Honourable*, upon the ſons of dukes, marquiſſes,

quisses, and the eldest sons of earls. 4. Together with *Honourable*, to the speaker of the house of commons; but to no other commoner excepting those who are members of his majesty's most honourable privy-council; and the three lord mayors of London, York, and Dublin, and the lord provost of Edinburgh, during their office. See HONOURABLE and PROVOST.

Hereditary Right. See HEREDITARY.

Term explained. RIGHT is a word which, in the propriety of the English language, is used sometimes as an adjective and sometimes as a substantive. As an adjective it is nearly of the same import with *fit*, *suitable*, *becoming*, *proper*; and whilst it expresses a quality, it indicates a relation. Thus, when we say that an action is *right*, we must not only know the nature of the action, but, if we speak intelligibly, must also perceive its relation to the end for which it was performed; for an action may be *right* with one end in view which would be *wrong* with another. The conduct of that general would be *right*, who, to save an army that could not be otherwise saved, should place a small detachment in a station where he knew they would all be inevitably cut off; but his conduct would be very *wrong* were he to throw away the life of a single individual for any purpose, however important, which he knew how to accomplish without such a sacrifice.

Many philosophers have talked of actions being *right* and *wrong* in the abstract without regard to their natural consequences; and converting the word into a substantive, they have fancied an eternal rule of *right*, by which the morality of human conduct is in every particular case to be tried. But in these phrases we can discover no meaning. Whatever is *right* must be so on *some account or other*; and whatever is *fit*, must be fit for some *purpose*. When he who rests the foundation of virtue on the *moral sense*, speaks of an action being *right*, he must mean that it is such as, through the medium of that sense, will excite complacency in the mind of the agent, and gain to him the general approbation of mankind. When he who rests moral obligation on the will of God, speaks of some actions as *right* and of others as *wrong*, he must mean that the former are agreeable to the divine will, however made known to men, and the latter disagreeable to it; and the man who deduces the laws of virtue from what he calls the *fitness of things* must have some *end in view*, for which things are fit, and denominate actions *right* or *wrong* as they tend to promote or counteract that end.

But the word *right*, used as a substantive, has in common as well as in philosophical language a signification which at first view appears to be very different from this. It denotes a *just claim* or an *honest possession*. Thus we say, a father has a *right* to reverence from his children, a husband to the love and fidelity of his wife, and a king to the allegiance of his subjects. But if we trace these *rights* to their source, we shall find that they are all laws of moral obligation, and that they are called *rights* only because it is agreeable to the will of God, to the instinctive dictates of the moral sense, or to the fitness of things, if such a phrase has any meaning, that children reverence their parents, that wives love their husbands, and that subjects pay allegiance to their sovereign. This will be apparent to any man who shall put to himself such questions as these: "*Why* have parents a *right* to reverence from their children, husbands to the love of their wives, and sovereigns to the allegiance of their subjects?" As these questions contain neither nonsense nor obscurity, it is obvious that they are each capable of a precise answer; but it is impossible to give to any of them an answer which shall have any meaning, and not imply that *right* and *obligation* are reciprocal, or, in other words, that where there is a *right* in one person, there is a corresponding *obligation* upon others. Thus to the question, "Why have parents a right to reverence from their children?" it may be answered, "because, under God, they were the authors of their children's being, and protected them from danger, and furnished them with necessaries when they were in a state so helpless that they could do nothing for themselves." This answer conveys no other meaning than that there is an obligation upon children, in return for benefits received, to reverence their parents. But what is the source of this obligation? It can only be the will of God, the moral sense, or the fitness of things.

This view of the nature of right will enable us to form a proper judgment of the assertion of a late writer, "that man has no rights." The arguments by which this apparent paradox is maintained, are not merely ingenious and plausible; they are absolutely conclusive. But then our philosopher, who never chooses to travel in the beaten track, takes the word *right* in a sense very different from that in which it has been used by all other men, and considers it as equivalent to *arbitrary power*. "By the word *right* (says he) is understood a full and complete power of either doing a thing or omitting it, without the person's becoming liable to animadversion or censure from another; that is, in other words, without his incurring any degree of turpitude or guilt." In this sense of the word he affirms, and affirms truly, that a man has no rights, no discretionary power whatever, except in things of such total indifference as, whether "he shall sit on the right or on the left side of his fire, or dine on beef to day or to-morrow."

A proposition so evidently true as this stood not in need of argument to support it; but as his arguments are clearly expressed, and afford a complete confutation of some popular errors sanctioned by the respectable phrase *rights of man*, we shall give our readers an opportunity of studying them in his own words.

"Political society is founded on the principles of morality and justice. It is impossible for intellectual beings to be brought into coalition and intercourse without a certain mode of conduct, adapted to their nature and connection, immediately becoming a duty incumbent on the parties concerned. Men would never have associated if they had not imagined that, in consequence of that association, they would mutually conduce to the advantage and happiness of each other. This is the real purpose, the genuine basis, of their intercourse; and, as far as this purpose is answered, so far does society answer the end of its institution. There is only one postulate more that is necessary to bring us to a conclusive mode of reasoning upon this subject. Whatever is meant by the term *right*, there can neither be opposite rights, nor rights and duties hostile to each other. The rights of one man cannot clash with or be destructive of the rights of another: for this, instead of rendering the subject an important branch of truth and morality as the advocates of the rights of man certain-

Right. ly understand it to be, would be to reduce it to a heap of unintelligible jargon and inconsistency. If one man have a right to be free, another man cannot have a right to make him a slave; if one man have a right to inflict chastisement upon me, I cannot have a right to withdraw myself from chastisement; if my neighbour have a right to a sum of money in my possession, I cannot have a right to retain it in my pocket. It cannot be less incontrovertible, that I have no right to omit what my duty prescribes. From hence it inevitably follows that men have no rights.

"It is commonly said, 'that a man has a right to the disposal of his fortune, a right to the employment of his time, a right to the uncontrolled choice of his profession or pursuits.' But this can never be consistently affirmed till it can be shown that he has no duties, prescribing and limiting his mode of proceeding in all these respects.

"In reality, nothing can appear more wonderful to a careful inquirer, than that two ideas so incompatible as *man* and *rights* should ever have been associated togegether. Certain it is, that one of them must be utterly exclusive and annihilatory of the other. Before we ascribe rights to man, we must conceive of him as a being endowed with intellect, and capable of discerning the differences and tendencies of things. But a being endowed with intellect, and capable of discerning the differences and tendencies of things, instantly becomes a moral being, and has duties incumbent on him to discharge: and duties and rights, as has already been shown, are absolutely exclusive of each other.

"It has been affirmed by the zealous advocates of liberty, 'that princes and magistrates have no rights;' and no position can be more incontrovertible. There is no situation of their lives that has not its correspondent duties. There is no power intrusted to them that they are not bound to exercise exclusively for the public good. It is strange, that persons adopting this principle did not go a step farther, and perceive that the same restrictions were applicable to subjects and citizens."

3 Real and

This reasoning is unanswerable; but it militates not against the *rights of man* in the usual acceptation of the words, which are never employed to denote discretionary power, but a just claim on the one hand, implying a corresponding obligation on the other. Whether the phrase be absolutely proper is not worth the debating: it is authorised by custom—the *jus et norma loquendi*—and is universally understood except by such as the dæmons of faction, in the form of paradoxical writers on political justice, have been able to mislead by sophistical reasonings.

4 Various.

Rights, in the common acceptation of the word, are of various kinds: they are *natural* or *adventitious*, *alienable* or *unalienable*, *perfect* or *imperfect*, *particular* or *general*. See the article LIBERTY.

5 Natural rights.

Natural rights are those which a man has to his life, limbs, and liberty; to the produce of his personal labour; to the use, in common with others, of air, light, and water, &c. That every man has a natural right or just claim to these things, is evident from their being absolutely necessary to enable him to answer that purpose, whatever it may be, for which he was made a living and a rational being. This shows undeniably, that the Author of his nature designed that he should have the use of them, and that the man who should wantonly deprive him of any one of them, would be guilty of a breach of the divine law, as well as act inconsistently with the fitness of things in every sense in which that phrase can possibly be understood.

6 Adventitious rights.

Adventitious rights are those which a king has over his subjects, a general over his soldiers, a husband to the person and affections of his wife, and which every man has to the greater part of his property. That the rights of the king and the general are adventitious, is universally admitted. The rights of property have been considered elsewhere (see PROPERTY); and though the human constitution shows sufficiently that men and women have a natural right to the use of each other, yet it is evident that the *exclusive* right of any one man to any one woman, and *vice versa*, must be an adventitious right: But the important question is, How are adventitious rights acquired?

7 How acquired.

In answer to this question, the moralist who deduces the laws of virtue from the will of God, observes, that as God appears from his works to be a benevolent Being, who wills the happiness of all his creatures (see METAPHYSICS, n° 312.), he must of course will every thing which naturally tends to promote that happiness. But the existence of civil society evidently contributes in a great degree to promote the sum of human happiness (see SOCIETY); and therefore whatever is necessary for the support of civil society in general, or for the conduct of particular societies already established, must be agreeable to the will of God: But the allegiance of subjects to their sovereign, the obedience of soldiers to their leader, the protection of private property, and the fulfilling of contracts, are all absolutely necessary to the support of society: and hence the rights of kings, generals, husbands, and wives, &c. though adventitious, and immediately derived from human appointment, are not less sacred than natural rights, since they may all be ultimately traced to the same source. The same conclusion may easily be drawn by the philosopher, who rests moral obligation on the fitness of things or on a moral sense; only it must in each of these cases partake of the instability of its foundation.

8 Objections to some of these rights.

To the sacredness of the rights of marriage, an author already quoted has lately urged some declamatory objections. "It is absurd (says he) to expect, that the inclinations and wishes of two human beings should coincide through any long period of time. To oblige them to act and to live together, is to subject them to some inevitable portion of thwarting, bickering, and unhappiness. This cannot be otherwise, so long as man has failed to reach the standard of absolute perfection. The supposition that I must have a companion for life, is the result of a complication of vices. It is the dictate of cowardice, and not of fortitude. It flows from the desire of being loved and esteemed for something that is not desert.

"But the evil of marriage, as it is practised in European countries, lies deeper than this. The habit is, for a thoughtless and romantic youth of each sex to come together, to see each other for a few times, and under circumstances full of delusion, and then to vow to each other eternal attachment. What is the consequence of this? In almost every instance they find themselves deceived. They are reduced to make the best of an irretrievable mistake. They are presented with the strongest imaginable temptation to become the dupes

of falſehood. They are led to conceive it their wiſeſt policy to ſhut their eyes upon realities; happy if by any perverſion of intellect they can perſuade themſelves that they were right in their firſt crude opinion of their companion.

"So long as two human beings are forbidden by poſitive inſtitution to follow the dictates of their own mind, prejudice is alive and vigorous. So long as I ſeek to engroſs one woman to myſelf, and to prohibit my neighbour from proving his ſuperior deſert and reaping the fruits of it, I am guilty of the moſt odious of all monopolies. Over this imaginary prize men watch with perpetual jealouſy; and one man will find his deſires and his capacity to circumvent as much excited, as the other is excited to traverſe his projects and fruſtrate his hopes. As long as this ſtate of ſociety continues, philanthropy will be croſſed and checked in a thouſand ways, and the ſtill augmenting ſtream of abuſe will continue to flow.

"The abolition of marriage will be attended with no evils. The intercourſe of the ſexes will fall under the ſame ſyſtem as any other ſpecies of friendſhip. Excluſively of all groundleſs and obſtinate attachments, it will be impoſſible for me to live in the world without finding one man of a worth ſuperior to that of any other whom I have an opportunity of obſerving. To this man I ſhall feel a kindneſs in exact proportion to my apprehenſion of his worth. The caſe will be preciſely the ſame with reſpect to the female ſex; I ſhall aſſiduouſly cultivate the intercourſe of that woman whoſe accompliſhments ſhall ſtrike me in the moſt powerful manner. 'But it may happen that other men will feel for her the ſame preference that I do.' This will create no difficulty. We may all enjoy her converſation; and we ſhall all be wiſe enough to conſider the ſenſual intercourſe as a very trivial object. This, like every other affair in which two perſons are concerned, muſt be regulated in each ſucceſſive inſtance by the unforced conſent of either party. It is a mark of the extreme depravity of our preſent habits, that we are inclined to ſuppoſe the ſenſual intercourſe anywiſe material to the advantages ariſing from the pureſt affection. Reaſonable men now eat and drink, not from the love of pleaſure, but becauſe eating and drinking are eſſential to our healthful exiſtence. Reaſonable men then will propagate their ſpecies, not becauſe a certain ſenſible pleaſure is annexed to this action, but becauſe it is right the ſpecies ſhould be propagated; and the manner in which they exerciſe this function will be regulated by the dictates of reaſon and duty."

It is right then, according to this political innovator, that the ſpecies ſhould be propagated, and reaſonable men in his Utopian commonwealth would be incited by reaſon and duty to propagate them: but the way to fulfil this duty, experience, which is ſeldom at one with ſpeculative reformation, has already demonſtrated, not to conſiſt in the promiſcuous intercourſe of ſeveral men with one woman, but in the fidelity of individuals of the two ſexes to each other. Common proſtitutes among us ſeldom prove with child; and the ſociety of *Arreoys* in Otaheitee, who have completely diveſted themſelves of what our author calls *prejudice*, and are by no means guilty of his *moſt odious of all monopolies*, are for the moſt part childleſs (ſee OTAHEITEE). He ſeems to think that a ſtate of equal property would neceſſarily deſtroy our reliſh for luxury, decreaſe our inordinate appetites of every kind, and lead us univerſally to prefer the pleaſures of intellect to the pleaſures of ſenſe. But here again experience is againſt him. The *Arreoys*, who have a property in their women perfectly equal, are the moſt luxurious and ſenſual wretches on the face of the earth; ſenſual indeed to a degree of which the moſt libidinous European can hardly form a conception.

By admitting it to be a duty to propagate the ſpecies, our author muſt neceſſarily grant that every thing is right which is requiſite to the fulfilling of that duty, and the contrary wrong. If ſo, promiſcuous concubinage is wrong, ſince we have ſeen, that by a law of nature it is incompatible with the duty; whence it follows on his own principles, that the ſexual union by pairs muſt be right. The only queſtion therefore to be decided between him and his opponents is, "Whether ſhould that union be temporary or permanent?" And we think the following obſervations by Mr Paley ſufficient to decide it to the conviction of every perſon not blinded by the rage of innovation.

"A lawgiver, whoſe counſels were directed by views of general utility, and obſtructed by no local impediments, would make the marriage-contract indiſſoluble during the joint lives of the parties, for the ſake of the following advantages: Such a union tends to preſerve peace and concord between married perſons, by perpetuating their common intereſt, and by inducing a neceſſity of mutual compliance. An earlier termination of it would produce a ſeparate intereſt. The wife would naturally look forward to the diſſolution of the partnerſhip, and endeavour to draw to herſelf a fund againſt the time when ſhe was no longer to have acceſs to the ſame reſources. This would beget peculation on one ſide, and miſtruſt on the other; evils which at preſent very little diſturb the confidence of married life. The ſecond effect of making the union determinable only by death, is not leſs beneficial. It neceſſarily happens, that adverſe tempers, habits, and taſtes, oftentimes meet in marriage. In which caſe, each party muſt take pains to give up what offends, and practice what may gratify, the other. A man and woman in love with each other do this inſenſibly: but love is neither general nor durable; and where that is wanting, no leſſons of duty, no delicacy of ſentiment, will go half ſo far with the generality of mankind and womankind as this one intelligible reflection, that they muſt each make the beſt of their bargain; and that ſeeing they muſt either both be miſerable or both ſhare in the ſame happineſs, neither can find their own comfort but in promoting the pleaſure of the other. Theſe compliances, though at firſt extorted by neceſſity, become in time eaſy and mutual; and though leſs endearing than aſſiduities which take their riſe from affection, generally procure to the married pair a repoſe and ſatisfaction ſufficient for their happineſs."

So differently from our author does this judicious writer reaſon concerning the effects of a permanent union on the tempers of the married pair. Inſtead of ſubjecting them to ſome inevitable portion of thwarting, bickering, and unhappineſs, it lays them, in his opinion, under the neceſſity of curbing their unruly paſſions, and acquiring habits of gentleneſs, forbearance, and peace. To this we may add, that both believing

Rigid

the children proceeded during their minority to be [illegible] one (a belief most inviolable by the father in a state of perfect concealment), they come to a natural [illegible] of the human passions (the Passions) to love each other through the medium of their offspring. But if it be the duty of man to acquire a spirit that pure, then peaceable, gentle, and easy to be intreated, it must be [illegible] to the will of God, and a [illegible] of [illegible] of things, that the sexual union last during the joint lives of the parties; and therefore the exclusive [illegible] of marriage, though adventitious, must be [illegible] with those which are natural.

10 Rights alienable or unalienable;

But to return from this digression, into which the [illegible] on the rights of [illegible], [illegible] be [illegible] and [illegible], are like wise *alienable* or *unalienable*. Every man, when he becomes the member of a civil community, alienates a part of his natural rights. In a state of nature, no man has a superior on earth, and each has a right to defend his life, liberty, and property, by all the means which nature has put in his power. In civil society, however, these rights are all transferred to the laws and the magistrate, except in cases of such extreme urgency as leave not time for legal interposition. This single consideration is sufficient to show, that the right to civil liberty is alienable; though, in the vehemence of men's zeal for it, and in the language of some political remonstrances, it has often been pronounced to be an unalienable right. "The true reason (says Mr Paley) why mankind hold in detestation the memory of those who have sold their liberty to a tyrant is, that, together with their own, they sold commonly or endangered the liberty of others; of which they had certainly no right to dispose." The rights of a prince over his people, and of a husband over his wife, are generally and naturally unalienable.

11 Perfect and imperfect.

Another division of rights is into those which are perfect and those which are imperfect. Perfect rights are such as may be precisely ascertained and asserted by force, or in civil society by the course of law. To imperfect rights neither force nor law is applicable. A man's rights to his life, person, and property, are all perfect; for if any of these be attacked, he may repel the attack by instant violence, punish the aggressor by the course of law, or compel the author of the injury to make restitution or satisfaction. A woman's right to her honour is likewise perfect; for if she cannot otherwise escape, she may kill the ravisher. Every poor man has undoubted right to relief from the rich: but his right is imperfect, for if the relief be not voluntarily given, he cannot compel it either by law or by violence. There is no duty upon which the Christian religion puts a greater value than alms-giving; and every preacher of the gospel has an undoubted right to inculcate the practice of it upon his audience: but even this right is imperfect, for he cannot refuse the communion to a man merely on account of his illiberality to the poor, as he can to another for the neglect of any duty comprehended under the term justice. In elections or apppointments to offices, where the qualifications are prescribed, the best qualified candidate has unquestionably a right to success; yet if he be rejected, he can neither seize the office by force, nor obtain redress at law. His right, therefore, is imperfect.

Here a question naturally offers itself to our consideration: "How comes a person to have a right to a thing, and yet have no right to use [illegible] means of [illegible] it?" The answer is, that in such [illegible] of the circumstances of the right [illegible], that the permission of force, even where the right is real and certain, would lead to [illegible] in [illegible] where there exists no right at all. Thus, [illegible] the poor man has a right to relief, who [illegible] the [illegible], [illegible], and quantity of it, or the person by whom it shall be administered? These things must be ascertained before the right to relief can be enforced by law; but to allow them to be ascertained by the poor themselves, would be to expose property to endless claims. In like manner, the comparative qualifications of the candidate must be ascertained, before he can enforce his right to the office; but to allow him to ascertain his qualifications himself, would be to make him judge in his own cause between himself and his neighbour.

12 Imperfect rights, [illegible] cruel w[illegible] those which [illegible] perfect.

Wherever the right is imperfect on one side, the corresponding obligation on the other must be imperfect likewise. The violation of it, however, is often not less criminal in a moral and religious view than of a perfect obligation. It is well observed by Mr Paley, that greater guilt is incurred by disappointing a worthy candidate of a place upon which perhaps his livelihood depends, and in which he could eminently serve the public, than by filching a book out of a library, or picking a pocket of a handkerchief. The same sentiment has been expressed by Mr Godwin, but in terms by much too strong, and such as show that he was not at the time complete master of his subject. "My neighbour (says he) has just as much right to put an end to my existence with dagger or poison, as to deny me that pecuniary assistance without which I must starve, or as to deny me that assistance without which my intellectual attainments, or my moral exertions, will be materially injured. He has just as much right to amuse himself with burning my house, or torturing my children upon the rack, as to shut himself up in a cell, careless about his fellow men, and to hide his talent in a napkin."

It is certainly true, that the man who should suffer another to starve for want of that relief which he *knew* that he *alone* could afford him, would be guilty of murder, and murder of the cruellest kind; but there is an immense difference between depriving society of one of its members, and with-holding from that member what might be necessary to enable him to make the greatest possible intellectual attainments. Newton might have been useful and happy though he had never been acquainted with the elements of mathematics; and the late celebrated Mr Ferguson might have been a valuable member of society, though he had never emerged from his original condition of a shepherd. The remainder of the paragraph is too absurd to require a formal confutation. Had our author, burying his talent in a napkin, shut himself up seven years ago in a cell, careless about his fellow men and *political justice*, he would have deprived the public of what he doubtless believes to be much useful instruction; but had he at that period amused himself with burning his neighbour's house, and torturing on the rack two or three children, he would have cut off, for any thing he could know, two or three future Newtons, and have himself been cut off by the insulted laws of his country. Now, without supposing the value of

of ten Newtons to be equal to that of one Godwin, we are warranted to say, that however great his merits may be, they are not infinite, and that the addition of those of one Newton to them would undoubtedly increase their sum.

Rights, are particular or general. Particular rights are such as belong to certain individuals or orders of men, and not to others. The rights of kings, of masters, of husbands, of wives, and, in short, all the rights which originate in society, are particular. General rights are those which belong to the species collectively. Such are our rights to the vegetable produce of the earth, and to the flesh of animals for food, though about the origin of this latter right there has been much diversity of opinion, which we have noticed in another place. (See THEOLOGY, Part I. sect. 2d). If the vegetable produce of the earth be included under the general rights of mankind, it is plain that he is guilty of wrong who leaves any considerable portion of land waste merely for his own amusement: he is lessening the common stock of provision which Providence intended to distribute among the species. On this principle it would not be easy to vindicate certain regulations respecting game, as well as some other monopolies which are protected by the municipal laws of most countries. Mr Paley, by just reasoning, has established this conclusion, "that nothing ought to be made exclusive property which can be conveniently enjoyed in common." An equal division of land, however, the dream of some visionary reformers, would be injurious to the general rights of mankind, as it may be demonstrated, that it would lessen the common stock of provisions, by laying every man under the necessity of being his own weaver, tailor, shoemaker, smith, and carpenter, as well as ploughman, miller, and baker. Among the general rights of mankind is the right of *necessity*; by which a man may use or destroy his neighbour's property when it is absolutely necessary for his own preservation. It is on this principle that goods are thrown overboard to save the ship, and houses pulled down to stop the progress of a fire. In such cases, however, at least in the last, restitution ought to be made when it is in our power; but this restitution will not extend to the original value of the property destroyed, but only to what it was worth at the time of destroying it, which, considering its danger, might be very little.

RIGHTEOUSNESS, means justice, honesty, virtue, goodness, and amongst Christians is of exactly the same import with holiness, without which, we are told, no man shall see the Lord. The doctrine of the fall, and of redemption through Jesus Christ, has occasioned much disputation, and given rise to many singular notions in the world. The haughty philosopher, dissatisfied with mysteries, and with the humiliating doctrine of atonement by a crucified Saviour, has made a religion for himself, which he calls *rational Christianity*; and the enthusiast, by extracting doctrines from Scripture which are not contained in it, and which are repugnant to its spirit, has given too much countenance to this presumption. The doctrine of imputed righteousness, by which the merit of Christ is said to be imputed to us, appears to be of this number; and though it has been held by many good, and by some learned men, it is certainly in general unfriendly to virtue, as will be readily allowed by all who have conversed with the more ignorant sort of Methodists in England or Seceders in Scotland. That it does not follow from the doctrine of the atonement, and consequently that it has no foundation in Scripture, will appear elsewhere. See THEOLOGY.

Bill of RIGHTS, in law, is a declaration delivered by the lords and commons to the prince and princess of Orange, 13th February 1688; and afterwards enacted in parliament, when they became king and queen. It sets forth, that king James did, by the assistance of divers evil counsellors, endeavour to subvert the laws and liberties of this kingdom, by exercising a power of dispensing with and suspending of laws; by levying money for the use of the crown by pretence of prerogative without consent of parliament; by prosecuting those who petitioned the king, and discouraging petitions; by raising and keeping a standing army in time of peace; by violating the freedom of election of members to serve in parliament; by violent prosecutions in the court of king's bench; and causing partial and corrupt jurors to be returned on trials, excessive bail to be taken, excessive fines to be imposed, and cruel punishments inflicted; all which were declared to be illegal. And the declaration concludes in these remarkable words: "And they do claim, demand, and insist upon, all and singular the premises, as their undoubted rights and liberties." And the act of parliament itself (1 W. & M. stat. 2. cap. 2.) recognizes "all and singular the rights and liberties, asserted and claimed in the said declaration, to be the true, ancient, indubitable rights of the people of this kingdom." See LIBERTY.

RIGIDITY, in physics, denotes a brittle hardness. It is opposed to ductility, malleability, and softness.

RIGOLL, or REGALS, a kind of musical instrument, consisting of several sticks bound together, only separated by beads. It is tolerably harmonious, being well struck with a ball at the end of a stick. Such is the account which Grassineau gives of this instrument. Skinner, upon the authority of an old English dictionary, represents it as a clavichord, or claricord; possibly founding his opinion on the nature of the office of the tuner of the regals, who still subsists in the establishment of the king's chapel at St James's, and whose business is to keep the organ of the chapel royal in tune; and not knowing that such wind instruments as the organ need frequent tuning, as well as the clavichord and other stringed instruments. Sir Henry Spelman derives the word *rigoll* from the Italian *rigabello*, a musical instrument, anciently used in churches instead of the organ. Walther, in his description of the regal, makes it to be a reed-work in an organ, with metal and also wooden pipes and bellows adapted to it. And he adds, that the name of it is supposed to be owing to its having been presented by the inventor to some king.—From an account of the regal used in Germany, and other parts of Europe, it appears to consist of pipes and keys on one side, and the bellows and wind-chest on the other. We may add, that Lord Bacon (Nat. Hist. cent. ii. §. 102.) distinguishes between the regal and organ, in a manner which shows them to be instruments of the same class. Upon the whole, there is reason to conclude, that the regal or rigoll was a pneumatic, and not a stringed instrument.

Mersennus relates, that the Flemings invented an instrument, *les regales de bois*, consisting of 17 cylindrical pieces

pieces of wood, decreasing gradually in length, so as to produce a succession of tones and semitones in the diatonic series, which had keys, and was played on as a spinet; the hint of which, he says, was taken from an instrument in use among the Turks, consisting of 12 wooden cylinders, of different lengths, strung together, which being suspended and struck with a stick, having a ball at the end, produced music. Hawkins's Hist. Mus. vol. ii. p. 449.

RIGOR, in medicine, a convulsive shuddering from severe cold, an ague fit, or other disorder.

RIMINI, an ancient, populous, and handsome town of Italy, in Romagna, which is part of the territory of the church, with a bishop's see, an old castle, and a strong tower; as also many remains of antiquity, and very fine buildings. It is famous for a council in 1359, consisting of 400 bishops, who were all Arians except 20. It is seated in a fertile plain, at the mouth of the river Marecchia, on the gulph of Venice. E. Long. 12. 39. N. Lat. 44. 6.

RIND, the skin of any fruit that may be cut off or pared. Rind is also used for the inner bark of trees, or that whitish soft substance which adheres immediately to the wood. See PLANT.

RING, an ornament of gold and silver, of a circular figure, and usually worn on the finger.

The episcopal ring (which makes a part of the pontifical apparatus, and is esteemed a pledge of the spiritual marriage between the bishop and his church) is of very ancient standing. The fourth council of Toledo, held in 633, appoints, that a bishop condemned by one council, and found afterwards innocent by a second, shall be restored, by giving him the ring, staff, &c. From bishops, the custom of the ring has passed to cardinals, who are to pay a very great sum *pro jure annuli cardinalitii*.

RINGS. The antiquity of rings is known from Scripture and profane authors. Judah left his ring or signet with Tamar (Gen. xxxviii. 18). When Pharaoh committed the government of all Egypt to Joseph, he took his ring from his finger, and gave it to Joseph (Gen. xli. 42). After the victory that the Israelites obtained over the Midianites, they offered to the Lord the rings, the bracelets, and the golden necklaces, and the ear-rings, that they had taken from the enemy (Numb. xxxi. 50). The Israelitish women wore rings not only on their fingers, but also in their nostrils and their ears. St James distinguishes a man of wealth and dignity by the ring of gold that he wore on his finger (James ii. 2). At the return of the prodigal son, his father orders him to be dressed in a new suit of clothes, and to have a ring put upon his finger (Luke xv. 22). When the Lord threatened King Jeconiah with the utmost effects of his anger, he tells him, that though he wore the signet or ring upon his finger, yet he should be torn off (Jer. xxii. 24).

The ring was used chiefly to seal with; and the Scripture generally puts it in the hands of princes and great persons; as the king of Egypt, Joseph, Ahaz, Jezebel, King Ahasuerus, his favourite Haman, Mordecai, who succeeded Haman in his dignity, King Darius (1 Kings xxi. 8.; Esther iii. 10, &c.; Dan. vi. 17). The patents and orders of these princes were sealed with their rings or signets; and it was this that secured to them their authority and respect. See the article SEAL.

Ring-Bone. See FARRIERY, Sect. xxxi.

Ring-Ousel, in ornithology, a species of TURDUS.

RIO-GRANDE, a river of Africa, which runs from east to west through Negroland, and falls into the Atlantic ocean, in 11 degrees of latitude. Some take it to be a branch of the Niger, of which there is not the least proof.

Rio-Grande, a river of South America, in Brasil, which has its source in an unknown country: it crosses the captainship of Rio-Grande, and falls into the sea at Natal los Reyes.

Rio-Janeiro, a river of South America, which rises in the mountains west of Brasil, and running east through that country, falls into the Atlantic Ocean, in S. Lat 23. 30. The province of Janeiro is one of the richest in Brasil; and produces gold, silver, diamonds, and other precious stones.

RIOM, a town of France, in Auvergne; seated on a hill, in so agreeable a country, that it is called the *garden of Auvergne*. E. Long. 3. 12. N. Lat. 45. 51.

RIOT, in law. The riotous assembling of 12 persons, or more, and not dispersing upon proclamation, was first made high treason by statute 3 & 4 Edw. VI. c. 5. when the king was a minor, and a change of religion to be effected: but that statute was repealed by statute 1 Mar. c. 1. among the other treasons created since the 25 Edw. III.; though the prohibition was in substance re-enacted, with an inferior degree of punishment, by statute 1 Mar. st. 2. c. 12. which made the same offence a single felony. These statutes specified and particularized the nature of the riots they were meant to suppress; as, for example, such as were set on foot with intention to offer violence to the privy-council, or to change the laws of the kingdom, or for certain other specific purposes; in which cases, if the persons were commanded by proclamation to disperse, and they did not, it was by the statute of Mary made felony, but within the benefit of clergy; and also the act indemnified the peace-officers and their assistants, if they killed any of the mob in endeavouring to suppress such riot. This was thought a necessary security in that sanguinary reign, when popery was intended to be re-established, which was like to produce great discontents: but at first it was made only for a year, and was afterwards continued for that queen's life. And, by statute 1 Eliz. c. 16. when a reformation in religion was to be once more attempted, it was revived and continued during her life also; and then expired. From the accession of James I. to the death of Queen Anne, it was never once thought expedient to revive it; but, in the first year of George I. it was judged necessary, in order to support the execution of the act of settlement, to renew it, and at one stroke to make it perpetual, with large additions. For, whereas the former acts expresly defined and specified what should be accounted a riot, the statute 1 Geo. I. c. 5. enacts, generally, that if any 12 persons are unlawfully assembled to the disturbance of the peace, and any one justice of the peace, sheriff, under-sheriff, or mayor of a town, shall think proper to command them by proclamation to disperse, if they contemn his orders and continue together for one hour afterwards, such contempt shall be felony without benefit of clergy. And farther, if the reading of the proclamation be by force opposed, or the reader be in any manner wilfully hindered

hindered from the reading of it, ſuch oppoſers and hinderers are felons without benefit of clergy; and all perſons to whom ſuch proclamation *ought to have been made*, and knowing of ſuch hindrance, and not diſperſing, are felons without benefit of clergy. There is the like indemnifying clauſe, in caſe any of the mob be unfortunately killed in the endeavour to diſperſe them; being copied from the act of queen Mary. And by a ſubſequent clauſe of the new act, if any perſon, ſo riotouſly aſſembled, begin even before proclamation to pull down any church, chapel, meeting-houſe, dwelling-houſe, or out-houſes, they ſhall be felons without benefit of clergy.

Riots, routs, and unlawful aſſemblies, muſt have three perſons at leaſt to conſtitute them. An *unlawful aſſembly* is, when three, or more, do aſſemble themſelves together to do an unlawful act, as to pull down incloſures, to deſtroy a warren or the game therein; and part without doing it, or making any motion towards it. A *rout* is where three or more meet to do an unlawful act upon a common quarrel, as forcibly breaking down fences upon a right claimed of common, or of way, and make ſome advances towards it. A *riot* is where three or more actually do an unlawful act of violence, either with or without a common cauſe or quarrel; as if they beat a man; or hunt and kill game in another's park, chaſe, warren, or liberty; or do any other unlawful act with force and violence; or even do a lawful act, as removing a nuiſance, in a violent and tumultuous manner. The puniſhment of unlawful aſſemblies, if to the number of 12, we have juſt now ſeen, may be capital, according to the circumſtances that attend it; but, from the number of three to eleven, is by fine and impriſonment only. The ſame is the caſe in riots and routs by the common law; to which the pillory in very enormous caſes has been ſometimes ſuperadded. And by the ſtatute 13 Hen. IV. c. 7. any two juſtices, together with the ſheriff or under-ſheriff of the county, may come with the *poſſe comitatus*, if need be, and ſuppreſs any ſuch riot, aſſembly, or rout, arreſt the rioters, and record upon the ſpot the nature and circumſtances of the whole tranſaction; which record alone ſhall be a ſufficient conviction of the offenders. In the interpretation of which ſtatute it hath been holden, that all perſons, noblemen and others, except women, clergymen, perſons decrepit, and infants under 15, are bound to attend the juſtices in ſuppreſſing a riot, upon pain of fine and impriſonment; and that any battery, wounding, or killing the rioters, that may happen in ſuppreſſing the riot, is juſtifiable. So that our ancient law, previous to the modern riot-act, ſeems pretty well to have guarded againſt any violent breach of the public peace; eſpecially as any riotous aſſembly on a public or general account, as to redreſs grievances or pull down all incloſures, and alſo reſiſting the king's forces if ſent to keep the peace, may amount to overt acts of high treaſon, by levying war againſt the king.

RIPEN, a town of Denmark, in north Jutland, and capital of a dioceſe of the ſame name, with a biſhop's ſee, a good harbour, a caſtle, two colleges, and a public library. The tombs of ſeveral of the kings of Denmark are in the cathedral church, which is a very handſome ſtructure. The harbour, which has contributed greatly to the proſperity of this place, is at a ſmall diſtance, being ſeated at the mouth of the river Nipſaa, in a country which ſupplies the beſt beeves in Denmark. It is 45 miles north-weſt of Sleſwick and 25 ſouth-by-weſt of Wiburg. E. Long. 8. 94. N. Lat. 55. 25. The dioceſe is bounded on the north by thoſe of Wiburg and Athuys, on the ſouth by the duchy of Sleſwick, and on the eaſt and weſt by the ſea.

RIPENING *of Grain*, means its arriving to maturity. The following paper, which appeared in the firſt volume of the Tranſactions of the Royal Society of Edinburgh, may be worthy the attention of farmers in this country; where it frequently happens, from continued rains, that the corn is quite green when the froſt ſets in; in conſequence of which, the farmers cut it down, without thinking it can poſſibly arrive at further maturity.

"Summer 1782 having been remarkably cold and unfavourable, the harveſt was very late, and much of the grain, eſpecially oats, was green even in October. In the beginning of October the cold was ſo great, that, in one night, there was produced on ponds near Kinneil, in the neighbourhood of Borrowſtounneſs, ice three quarters of an inch thick. It was apprehended by many farmers, that ſuch a degree of cold would effectually prevent the further filling and ripening of their corn. In order to aſcertain this point, Dr Roebuck ſelected ſeveral ſtalks of oats, of nearly equal fulneſs, and immediately cut thoſe which, on the moſt attentive compariſon, appeared the beſt, and marked the others, but allowed them to remain in the field 14 days longer; at the end of which time they, too, were cut, and kept in a dry room for 10 days. The grains of each parcel were then weighed; when 11 of the grains which had been left ſtanding in the field were found to be equal in weight to 30 of the grains which had been cut a fortnight ſooner, though even the beſt of the grains were far from being ripe. During that fortnight (viz. from October 7th to October 21ſt) the average heat, according to Fahrenheit's thermometer, which was obſerved every day at eight o'clock in the morning and ſix in the evening, was a little above 43. Dr Roebuck obſerves, that this ripening and filling of corn in ſo low a temperature ſhould be the leſs ſurpriſing to us, when we reflect, that ſeed-corn will vegetate in the ſame degree of heat; and he draws an important inference from his obſervations, viz. That farmers ſhould be cautious of cutting down their unripe corn, on the ſuppoſition that in a cold autumn it could fill no more."

A writer in the Scots Magazine for June 1792, under the ſignature of *Agricola*, when ſpeaking on this ſubject, adds the following piece of information, viz. "That grain cut down before it is quite ripe will grow or ſpring equally well as ripe and plump grain, provided it is properly preſerved. I relate this from a fact, and alſo on the authority of one of the moſt judicious and experienced farmers in this iſland, William Craik of Arbigland, Eſq; near Dumfries, who was taught by ſuch a ſeaſon as this threatens to prove. This being the caſe, every wiſe economical farmer will preſerve his ripe and plump grain for bread, and ſow the green and ſeemingly ſhrivelled grain, with a perfect conviction that the plants proceeding from ſuch ſeed will yield as ſtrong and thriving corn as what grows from plump ſeed. By this means the farmer will enjoy the double advantage of having the corn moſt productive in flour for bread, and his

Riphean
Risible.

his light ſhrivelled grain will go much farther in ſeed than the plump grain would do. I ſaw the experiment made on wheat which was ſo ſhrivelled that it was thought ſcarcely worth giving to fowls, and yet produced heavy large ears."

RIPHEAN MOUNTAINS, are a chain of high mountains in Ruſſia, to the north-eaſt of the river Oby, which there are ſaid to be the fineſt ſables of the whole empire.

RIPHATH, or RIPHAT, ſecond ſon of Gomer, and grandſon of Japhet (Gen. x. 3. דיפת *Riphat*). In ſome copies he is called *Diphath* in the Chronicles (1 Chr. i. 6. דיפת *Diphat*). The reſemblance of the two Hebrew letters ר *Reſh* and ד *Daleth* is ſo much, that they are very often confounded. But, to the credit of the tranſlators of our Engliſh verſion be it ſaid, that in this inſtance, as well as in many others, they have reſtored the original reading, and rendered it Riphath. The learned are not agreed about the country that was peopled by the deſcendants of Riphath. The Chaldee and Arabic take it for France; Euſebius for the country of the Sauromatæ; the Chronicon Alexandrinum for that of the Garamantæ; Joſephus for Paphlagonia. Mela aſſures us, that anciently the people of this province were called *Riphatei*, or Riphaeos; and in Bithynia, bordering upon Paphlagonia, may be found the river Rhebeus, a people called *Rhebantes*, and a canton of the ſame name. Theſe reaſons have prevailed with Bochart to believe, that Riphath peopled Paphlagonia. Others think he peopled the Montes Riphei; and this opinion ſeems the moſt reaſonable to us, becauſe the other ſons of Gomer peopled the northern countries towards Scythia, and beyond the Euxine ſea.

RISIBLE, any thing capable of exciting laughter.

Ludicrous is a general term, ſignifying, as may appear from its derivation, what is playſome, ſportive, or jocular. *Ludicrous* therefore ſeems the genus, of which *riſible* is a ſpecies, limited as above to what makes us laugh.

However eaſy it may be, concerning any particular object, to ſay whether it be riſible or not, it ſeems difficult, if at all practicable, to eſtabliſh any general character, by which objects of that kind may be diſtinguiſhed from others. Nor is that a ſingular caſe; for, upon a review, we find the ſame difficulty in moſt of the articles already handled. There is nothing more eaſy, viewing a particular object, than to pronounce that it is beautiful or ugly, grand or little: but were we to attempt general rules for ranging objects under different claſſes according to theſe qualities, we ſhould be much gravelled. A ſeparate cauſe increaſes the difficulty of diſtinguiſhing riſible objects by a general character: all men are not equally affected by riſible objects, nor the ſame man at all times; for in high ſpirits a thing will make him laugh outright, which will ſcarce provoke a ſmile in a grave mood. Riſible objects, however, are circumſcribed within certain limits. No object is riſible but what appears ſlight, little, or trivial; for we laugh at nothing that is of importance to our own intereſt or to that of others. A real diſtreſs raiſes pity, and therefore cannot be riſible; but a ſlight or imaginary diſtreſs, which moves not pity, is riſible. The adventure of the fulling-mills in Don Quixote, is extremely riſible; ſo is the ſcene where Sancho, in a dark night, tumbling into a pit, and attaching himſelf to the ſide by hand and foot, hangs there in terrible diſmay till the morning, when he diſcovers himſelf to be within a foot of the bottom. A noſe remarkably long or ſhort, is riſible; but to want it altogether, ſo far from provoking laughter, raiſes horror in the ſpectator. With reſpect to works both of nature and of art, none of them are riſible but what are out of rule; ſome remarkable defect or exceſs, a very long viſage, for example, or a very ſhort one. Hence nothing juſt, proper, decent, beautiful, proportioned, or grand, is riſible.

Even from this ſlight ſketch it will be readily conjectured, that the emotion raiſed by a riſible object is of a nature ſo ſingular, as ſcarce to find place while the mind is occupied with any other paſſion or emotion; and the conjecture is verified by experience; for we ſcarce ever find that emotion blended with any other. One emotion we muſt except; and that is, contempt raiſed by certain improprieties: every improper act inſpires us with ſome degree of contempt for the author; and if an improper act be at the ſame time riſible to provoke laughter, of which blunders and abſurdities are noted inſtances, the two emotions of contempt and of laughter unite intimately in the mind, and produce externally what is termed a *laugh of deriſion* or *of ſcorn*. Hence objects that cauſe laughter may be diſtinguiſhed into two kinds: they are either *riſible* or *ridiculous*. A riſible object is mirthful only; a ridiculous object is both mirthful and contemptible. The firſt raiſes an emotion of laughter that is altogether pleaſant: the pleaſant emotion of laughter raiſed by the other, is blended with the painful emotion of contempt; and the mixed emotion is termed *the emotion of ridicule*. The pain a ridiculous object gives me, is reſented and puniſhed by a laugh of deriſion. A riſible object, on the other hand, gives me no pain: it is altogether pleaſant by a certain ſort of titillation, which is expreſſed externally by mirthful laughter. See RIDICULE.

Riſible objects are ſo common, and ſo well underſtood, that it is unneceſſary to conſume paper or time upon them. Take the few following examples:

Falſtaff. I do remember him at Clement's inn, like a man made after ſupper of a cheeſe-paring. When he was naked, he was for all the world like a forked radiſh, with a head fantaſtically carved upon it with a knife. *Second part, Henry* IV. *act.* 3. *ſc.* 5.

The foregoing is of diſproportion. The following examples are of ſlight or imaginary misfortunes.

Falſtaff. Go fetch me a quart of ſack, put a toaſt in't. Have I liv'd to be carried in a baſket, like a barrow of butcher's offal, and to be thrown into the Thames! Well, if I be ſerved ſuch another trick, I'll have my brains ta'en out and butter'd, and give them to a dog for a new-year's gift. The rogues ſlighted me into the river with as little remorſe as they would have drown'd a bitch's blind puppies, fifteen i'th'litter; and you may know by my ſize that I have a kind of alacrity in ſinking; if the bottom were as deep as hell, I ſhould down. I had been drown'd, but that the ſhore was ſhelvy and ſhallow; a death that I abhor: for the water ſwells a man; and what a thing ſhould I have been when I had been ſwell'd? I ſhould have been a mountain of mummy.

Merry Wives of Windſor, act 3. *ſc.* 15.

Falſtaff. Nay, you ſhall hear, Maſter Brook, what I have ſuffer'd to bring this woman to evil for your good. Being thus cramm'd in the baſket, a couple of Ford's knaves, his hinds, were call'd forth by their miſtreſs, to carry me in the name of foul clothes to Datchet-lane. They took me on their ſhoulders, met the jealous knave their maſter in the door, who aſk'd them once or twice what they had in their baſket. I quak'd for fear, leſt the lunatic knave would have ſearch'd it; but Fate, ordaining he ſhould be a cuckold, held his hand. Well, on went he for a ſearch, and away went I for foul clothes. But mark the ſequel, Maſter Brook. I ſuffer'd the pangs of three egregious deaths: firſt, an intolerable fright, to be detected by a jealous rotten bell-weather; next, to be compaſs'd like a good bilbo, in the circumference of a peck, hilt to point, heel to head; and then to be ſtopt in, like a ſtrong diſtillation, with ſtinking clothes that fretted in their own greaſe. Think of that, a man of my kidney; think of that, that am as ſubject to heat as butter; a man of continual diſſolution and thaw; it was a miracle to 'ſcape ſuffocation. And in the height of this bath, when I was more than half ſtew'd in greaſe, like a Dutch diſh, to be thrown into the Thames, and cool'd glowing hot, in that ſurge, like a horſe-ſhoe; think of that; hiſſing hot; think of that, Mr Brook.

Merry Wives of Windſor, act 3. ſc. 17.

RITE, among divines, denotes the particular manner of celebrating divine ſervice in this or that country. Rite

RITORNELLO, or Ritornar, in muſic, the burden of a ſong, or the repetition of the firſt or other verſes of a ſong at the end of each couplet. River.

RITTERHUSIUS (Conrad), a learned German civilian, born at Brunſwick in 1560. He was profeſſor of civil law at Altdorf, and publiſhed a variety of works, particularly as a civilian; together with an edition of Oppian in Greek and Latin: he was moreover an excellent critic; his notes upon many eminent authors having been inſerted in the beſt editions of them. He died in 1613.

RITUAL, a book directing the order and manner to be obſerved in performing divine ſervice in a particular church, dioceſe, or the like. The ancient heathens had alſo their rituals, which contained their rites and ceremonies to be obſerved in building a city, conſecrating a temple or altar, in ſacrificing, and deifying, in dividing the curiæ, tribes, centuries, and in general, in all their religious ceremonies. There are ſeveral paſſages in Cato's books, *De re Ruſtica*, which may give us ſome idea of the rituals of the ancients.

RIVAL, a term applied to two or more perſons who have the ſame pretenſions; and which is properly applied to a competitor in love, and figuratively to an antagoniſt in any other purſuit.

R I V E R,

IS a current of freſh water, flowing in a Bed or Channel from its ſource to the ſea. 1 Definition.

The term is appropriated to a *conſiderable* collection of waters, formed by the conflux of two or more Brooks, which deliver into its channel the united ſtreams of ſeveral Rivulets, which have collected the ſupplies of many Rills trickling down from numberleſs ſprings, and the torrents which carry off from the ſloping grounds the ſurplus of every ſhower. 2 Utility of rivers.

Rivers form one of the chief features of the ſurface of this globe, ſerving as voiders of all that is immediately redundant in our rains and ſprings, and alſo as boundaries and barriers, and even as highways, and in many countries as plentiful ſtorehouſes. They alſo fertiliſe our ſoil by laying upon our warm fields the richeſt mould, brought from the high mountains, where it would have remained uſeleſs for want of genial heat.

Being ſuch intereſting objects of attention, every branch acquires a proper name, and the whole acquires a ſort of perſonal identity, of which it is frequently difficult to find the principle; for the name of the great body of waters which diſcharges itſelf into the ſea is traced backwards to one of the ſources, while all the contributing ſtreams are loſt, although their waters form the chief part of the collection. And ſometimes the feeder in which the name is preſerved is ſmaller than others which are united to the current, and which like a rich but ignoble alliance loſe their name in that of the more illuſtrious family. Some rivers indeed are reſpectable even at their birth, coming at once in force from ſome great lake. Such is the Rio de la Plata, the river St Laurence, and the mighty ſtreams which iſſue in all directions from the Baical lake. But, like the ſons of Adam, they are all of equal deſcent, and ſhould take their name from one of the feeders of theſe lakes. This is indeed the caſe with a few, ſuch as the Rhone, the Rhine, the Nile. Theſe, after having mixed their waters with thoſe of the lake, reſume their appearance and their name at its outſet. 3 Origin of rivers.

But in general their origin and progreſs, and even the features of their character, bear ſome reſemblance (as has been prettily obſerved by Pliny) to the life of man. The river ſprings from the earth; but its origin is in heaven. Its beginnings are inſignificant, and its infancy is frivolous; it plays among the flowers of a meadow; it waters a garden, or turns a little mill. Gathering ſtrength in its youth, it becomes wild and impetuous. Impatient of the reſtraints which it ſtill meets with in the hollows among the mountains, it is reſtleſs and fretful; quick in its turnings, and unſteady in its courſe. Now it is a roaring cataract, tearing up and overturning whatever oppoſes its progreſs, and it ſhoots headlong down from a rock; then [illegible] a ſullen and gloomy pool, buried in the bottom of a glen. Recovering breath by [illegible] along, till tired of the [illegible] that it has ſwept along, and leaves the opening of the valley ſtrewed with the [illegible] its retirement, it comes abroad into the world, journeying with more prudence and diſcretion through cultivated fields, yielding to circumſtances, and winding round what would trouble it to overwhelm or remove. It paſſes through the populous cities and all the buſy haunts of man, tendering its ſervices on every ſide, and becomes the ſupport and ornament of the country. Now [illegible] and [illegible] 4 Obſervations on the progreſs ſimilar to the life of man.

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in its course of existence, it becomes grave and stately in its motions, loves peace and quiet; and in majestic silence rolls on its mighty waters, till it is laid to rest in the vast abyss.

5 The religious respect for rivers

The philosopher, the real lover of wisdom, sees much to admire in the economy and mechanism of running waters; and there are few operations of nature which give him more opportunities of remarking the nice adjustment of the most simple means for attaining many purposes of most extensive beneficence. All mankind seem to have felt this. The heart of man is ever open (unless perverted by the habits of selfish indulgence and arrogant self-conceit) to impressions of gratitude and love. He who ascribes the religious principle (debased, though it be by the humbling abuses of superstition) to the workings of fear alone, may betray the slavish meanness of his own mind, but gives a very unfair and a false picture of the hearts of his neighbours. Lucretius was but half a philosopher when he penned his often-quoted apophthegm. Indeed his own invocations show how much the animal was blended with the sage.

6 The effect of gratitude and affection.

We apprehend, that whoever will read with an honest and candid mind, unbiassed by licentious wishes, the accounts of the ancient superstitions, will acknowledge that the amiable emotions of the human soul have had their share in creating the numerous divinities whose worship filled up their kalendars. The sun and the host of heaven have in all ages and nations been the objects of a sincere worship. Next to them, the rivers seem to have attracted the grateful acknowledgments of the inhabitants of the adjacent countries. They have everywhere been considered as a sort of tutelar divinities; and each little district, every retired valley, had its river god, who was preferred to all others with a partial fondness. The expostulation of Naaman the Syrian, who was offended with the prophet for enjoining him to wash in the river Jordan, was the natural effusion of this attachment. "What! (said he), are not Abana and Pharphat, rivers of Damascus, more excellent than all the waters of Judæa? Might I not wash in them and be clean? So he went away wroth."

In those countries particularly, where the rural labours, and the hopes of the shepherd and the husbandman, were not so immediately connected with the approach and recess of the sun, and depended rather on what happened in a far distant country by the falls of periodical rains or the melting of collected snows, the Nile, the Ganges, the Indus, the river of Pegu, were the sensible agents of nature in procuring to the inhabitants of their fertile banks all their abundance, and they became the objects of grateful veneration. Their sources were sought out with anxious care even by conquering princes; and when found, were universally worshipped with the most affectionate devotion. These remarkable rivers, so eminently and so palpably beneficent, preserve to this day, amidst every change of habit, and every increase of civilization and improvement, the fond adoration of the inhabitants of those fruitful countries through which they hold their stately course, and their waters are still held sacred. No progress of artificial refinement, not all the corruption of luxurious sensuality, has been able to eradicate this plant of native growth from the heart of man. The sentiment is congenial to his nature, and therefore it is universal; and we could almost appeal to the feelings of every reader, whether he does not perceive it in his own breast. Perhaps we may be mistaken in our opinion in the case of the corrupted inhabitants of the populous and busy cities, who are habituated to the fond contemplation of their own individual exertions as the sources of all their hopes. Give the shoemaker but leather and a few tools, and he defies the powers of nature to disappoint him; but the simpler inhabitants of the country, the most worthy and the most respectable part of every nation, after equal, perhaps greater exertion both of skill and of industry, are more accustomed to resign themselves to the great ministers of Providence, and to look up to heaven for the "early and the latter rains," without which all their labours are fruitless.

——————— extrema per illos
Numenque excedens terris vestigia fecit.

And among the husbandmen and the shepherds of all nations and ages, we find the same fond attachment to their springs and rivulets.

Fortunate senex, hic inter flumina nota
Et fontes sacros frigus captabis opacum,

was the mournful ejaculation of poor Melibœus. We hardly know a river of any note in our own country whose source is not looked on with some respect.

We repeat our assertion, that this worship was the offspring of affection and gratitude, and that it is giving a very unfair and false picture of the human mind to ascribe these superstitions to the working of fear alone. These would have represented the river-gods as seated on ruins, brandishing rooted-up trees, with angry looks, pouring out their sweeping torrents. But no such thing. The lively imagination of the Greeks felt, and expressed with an energy unknown to all other nations, every emotion of the human soul. They figured the Naiads as beautiful nymphs, patterns of gentleness and of elegance. They are represented as partially attached to the children of men; and their interference in human affairs is always in acts of kind assistance and protection. They resemble, in this respect, the rural deities of the northern nations, the fairies, but without their caprices and resentments. And, if we attend to the descriptions and representations of their River-Gods, beings armed with power, an attribute which slavish fear never fails to couple with cruelty and vengeance, we find the same expression of affectionate trust and confidence in their kind dispositions. They are generally called by the respectable but endearing name of *father*. "*Da Tyberi pater*," says Virgil. Mr Bruce says that the Nile at its source is called the *abay* or "father."--We observe this word, or its radix, blended with many names of rivers of the east; and think it probable that when our traveller got this name from the inhabitants of the neighbourhood, they applied to the stream what is meant to express the tutelar or presiding spirit. The river-gods are always represented as venerable old men, to indicate their being coeval with the world. But it is always a *cruda viridisque senectus*, and they are never represented as oppressed with age and decrepitude. Their beards are long and flowing, their looks placid, their attitude easy, reclined on a bank, covered, as they are crowned, with never-fading sedges and bulrushes, and leaning on their urns, from which they pour out their plentiful and fertilizing streams.—

Mr

Mr Bruce's description of the sources of the Nile, and of the respect paid to the sacred waters, has not a frowning feature; and the hospitable old man, with his fair daughter Irepone, and the gentle priesthood which peopled the little village of Geesh, forms a contrast with the neighbouring Galla (among whom a military leader was called the *lamb*, because he did not murder pregnant women), which very distinctly paints the inspiring principle of this superstition. Pliny says (VIII. 8.) that at the source of the Clitumnus there is an ancient temple highly respected. The presence and the power of the divinity are expressed by the fates which stand in the vestibule.—Around this temple are several little chapels, each of which covers a sacred fountain; for the Clitumnus is the father of several little rivers which unite their streams with him. At some distance below the temple is a bridge which divides the sacred waters from those which are open to common use. No one must presume to set his foot in the streams above this bridge; and to step over any of them is an indignity which renders a person infamous. They can only be visited in a consecrated boat. Below the bridge we are permitted to bathe, and the place is incessantly occupied by the neighbouring villagers. (See also *Vibius Sequestr. Orbelini*, p. 101—103. and 221—223. also *Sueton. Caligula*, c. 43. *Virg. Georg. II.* 146.)

What is the cause of all this? The Clitumnus flows (near its source) through the richest pastures, through which it was carefully distributed by numberless drains; and these nourished cattle of such spotless whiteness and extraordinary beauty, that they were sought for with eagerness over all Italy, as the most acceptable victims in their sacrifices. Is not this superstition then an effusion of gratitude?

Such are the dictates of kind-hearted nature in our breasts, before it has been vitiated by vanity and self-conceit, and we should not be ashamed of feeling the impression. We hardly think of making any apology for dwelling a little on this incidental circumstance of the superstitious veneration paid to rivers. We cannot think that our readers will be displeased at having agreeable ideas excited in their minds, being always of opinion that the torch of true philosophy will not only enlighten the understanding, but also warm and cherish the affections of the heart.

7 Origin of rivers.

With respect to the origin of rivers, we have very little to offer in this place. It is obvious to every person, that besides the torrents which carry down into the rivers what part of the rains and melted snows is not absorbed by the soil or taken up by the plants which cover the earth, they are fed either immediately or remotely by the springs. A few remarkable streams rush at once out of the earth in force, and must be considered as the continuation of subterraneous rivers, whose origin we are therefore to seek out; and we do not know any circumstance in which their first beginnings differ from those of other rivers, which are formed by the union of little streams and rills, each of which has its own source in a spring or fountain. This question, therefore, What is the process of nature, and what are the supplies which fill our springs? will be treated of under the word SPRING.

Whatever be the source of rivers, it is to be met with in almost every part of the globe. The crust of earth with which the rocky framing of this globe is covered is generally stratified. Some of these strata are extremely pervious to water, having but small attraction for its particles, and being very porous. Such is the quality of gravelly strata in an eminent degree. Other strata are much more firm, or attract water more strongly, and refuse it a passage. This is the case with firm rock and with clay. When a stratum of the first kind has one of the other immediately under it, the water remains in the upper stratum, and bursts out wherever the sloping sides of the hills cut off the strata, and this will be in the form of a trickling spring, because the water in the porous stratum is greatly obstructed in its passage towards the outlet. As this irregular formation of the earth is very general, we must have springs, and of course rivers or rivulets, in every corner where there are high grounds.

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8 They flow from the higher to the lower grounds.

Rivers flow from the higher to the low grounds. It is the arrangement of this elevation which distributes them over the surface of the earth. And this appears to be accomplished with considerable regularity; and, except the great desert of Kobi on the confines of Chinese Tartary, we do not remember any very extensive track of ground that is deprived of those channels for voiding the superfluous waters; and even there they are far from being redundant.

9 Course of the rivers of Europe.

The course of rivers give us the best general method for judging of the elevation of a country. Thus it appears that Savoy and Switzerland are the highest grounds of Europe, from whence the ground slopes in every direction. From the Alps proceed the Danube and the Rhine, whose courses mark the two great valleys, into which many lateral streams descend. The Po also and the Rhone come from the same head, and with a steeper and shorter course find their way to the sea through valleys of less breadth and length. On the west side of the valleys of the Rhine and the Rhone the ground rises pretty fast, so that few tributary streams come into them from that side; and from this gentle elevation France slopes to the westward. If a line, nearly straight, but bending a little to the northward, be drawn from the head of Savoy and Switzerland all the way to Solikamskoy in Siberia, it will nearly pass through the most elevated part of Europe; for in this track most of the rivers have their rise. On the left go off the various feeders of the Elbe, the Oder, the Wesel, the Niemen, the Duna, the Neva, the Dwina, the Petzora. On the right, after passing the feeders of the Danube, we see the sources of the Sereth and Pruth, the Dniester, the Bog, the Dnieper, the Don, and the mighty Volga. The elevation, however, is extremely moderate; and it appears from the levels taken with the barometer by the Abbé Chappe d'Auteroche, that the head of the Volga is not more than 470 feet above the surface of the ocean. And we may observe here by the bye, that its mouth, where it discharges its waters into the Caspian sea, is undoubtedly lower, by many feet, than the surface of the ocean. See PNEUMATICS, n° 277. Spain and Finland, with Lapland, Norway, and Sweden, form two detached parts, which have little symmetry with the rest of Europe.

10 Of Asia.

A chain of mountains begins in Nova Zembla, and stretches due south to near the Caspian Sea, dividing Europe from Asia. About three or four degrees north of

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of the Caſpian ſea it bends to the ſouth-eaſt, traverſes weſtern Tartary, and paſſing between the Tengis and Zaizan lakes, it then branches to the eaſt and ſouth. The eaſtern branch runs to the ſhores of Korea and Kamtſchatka. The ſouthern branch traverſes Turkeſtan and Thibet, ſeparating them from India, and at the head of the kingdom of Ava joins an arm ſtretching from the great eaſtern branch, and here forms the centre of a very ſingular radiation. Chains of mountains iſſue from it in every direction. Three or four of them keep very cloſe together, dividing the continent into narrow ſlips, which have each a great river flowing in the middle, and reaching to the extreme points of Malacca, Cambodia, and Cochin-china. From the ſame central point proceeds another great ridge due eaſt, and paſſes a little north of Canton in China. We called this a ſingular centre: for though it ſends off ſo many branches, it is by no means the moſt elevated part of the continent. In the triangle which is included between the firſt ſouthern ridge (which comes from between the lakes Tanges and Zaizan), the great eaſtern ridge, and its branch which almoſt unites with the ſouthern ridge, lies the Boutan, and part of Tibet, and the many little rivers which occupy its ſurface, flow ſouthward and eaſtward, uniting a little to the north of the centre often mentioned, and then paſs through a gorge eaſtward into China. And it is farther to be obſerved, that theſe great ridges do not appear to be ſeated on the higheſt parts of the country; for the rivers which correſpond to them are at no great diſtance from them, and receive their chief ſupplies from the other ſides. This is remarkably the caſe with the great Oby, which runs almoſt parallel to the ridge from the lakes to Nova Zembla. It receives its ſupplies from the eaſt, and indeed it has its ſource far eaſt. The higheſt grounds (if we except the ridges of mountains which are boundaries) of the continent ſeem to be in the country of the Calmucs, about 95° eaſt from London, and latitude 43° or 45° north. It is repreſented as a fine though ſandy country, having many little rivers which loſe themſelves in the ſand, or end in little ſalt lakes. This elevation ſtretches north-eaſt to a great diſtance; and in this track we find the heads of the Irtiſh, Selenga, and Tunguſkaia (the great feeders of the Oby), the Olenitz, the Lena, the Yana, and ſome other rivers which all go off to the north. On the other ſide we have the great river Amur, and many ſmaller rivers, whoſe names are not familiar. The Hoangho, the great river of China, riſes on the ſouth ſide of the great eaſtern ridge we have ſo often mentioned. This elevation, which is a continuation of the former, is ſomewhat of the ſame complexion, being very ſandy, and at preſent is a deſert of prodigious extent. It is deſcribed, however, as interſperſed with vaſt tracks of rich paſture; and we know that it was formerly the reſidence of a great nation, who came ſouth, by the name of *Turks*, and poſſeſſed themſelves of moſt of the richeſt kingdoms of Aſia. In the ſouth-weſtern extremity of this country are found remains not only of barbaric magnificence, but even of cultivation and elegance. It was a profitable privilege granted by Peter the Great to ſome adventurers to ſearch theſe ſandy deſerts for remains of former opulence, and many pieces of delicate workmanſhip (tho' not in a ſtyle which we would admire) in gold and ſilver were found. Vaults were found buried in the ſand filled with written papers, in a character wholly unknown; and a wall was diſcovered extending ſeveral miles, built with hewn ſtone, and ornamented with corniche and battlements. But we are forgetting ourſelves, and return to the conſideration of the diſtribution of the rivers on the ſurface of the earth. A great ridge of mountains begins at the ſouth-eaſt corner of the Euxine Sea, and proceeds eaſtward, ranging along the ſouth ſide of the Caſpian, and ſtill advancing unites with the mountains firſt mentioned in Thibet, ſending off ſome branches to the ſouth, which divide Perſia, India, and Thibet. From the ſouth ſide of this ridge flow the Euphrates, Tigris, Indus, Ganges, &c. and from the north the ancient Oxus and many unknown ſtreams.

There is a remarkable circumſtance in this quarter of the globe. Although it ſeems to be neareſt to the greateſt elevations, it ſeems alſo to have places of the greateſt depreſſion. We have already ſaid that the Caſpian Sea is lower than the ocean. There is in its neighbourhood another great baſon of ſalt water, the lake Aral, which receives the waters of the Oxus or Gihon, which were ſaid to have formerly run into the Caſpian Sea. There cannot therefore be a great difference in the level of theſe two baſons; neither have they any outlet, tho' they receive great rivers. There is another great lake in the very middle of Perſia, the Zare or Zara, which receives the river Hindemend, of near 250 miles length, beſides other ſtreams. There is another ſuch in Aſia Minor. The ſea of Sodom and Gomorrah is another inſtance. And in the high countries we mentioned, there are many ſmall ſalt lakes, which receive little rivers, and have no outlet. The lake Zara in Perſia, however, is the only one which indicates a conſiderable hollow of the country. It is now aſcertained by actual ſurvey, that the ſea of Sodom is conſiderably higher than the Mediterranean. This feature is not, however, peculiar to Aſia. It obtains alſo in Africa, whoſe rivers we now proceed to mention.

Of them, however, we know very little. The Nile indeed is perhaps better known than any river out of Europe; and of its ſource and progreſs we have given a full account in a ſeparate article. See Nile.

By the regiſter of the weather kept by Mr Bruce at Gondar in 1770 and 1771, it appears that the greateſt rains are about the beginning of July. He ſays that at an average each month after June it doubles its rains. The caliſh or canal is opened at Cairo about the 9th of Auguſt, when the river has riſen 14 peeks (each 21 inches), and the waters begin to decreaſe about the 10th of September. Hence we may form a conjecture concerning the time which the water employs in coming from Abyſſinia. Mr Bruce ſuppoſes it 9 days, which ſuppoſes a velocity not leſs than 14 feet in a ſecond; a thing paſt belief, and inconſiſtent with all our notions. The general ſlope of the river is greatly diminiſhed by ſeveral great cataracts; and Mr Bruce expreſsly ſays, that he might have come down from Sennaar to the cataracts of Syene in a boat, and that it is navigable for boats far above Sennaar. He came from Syene to Cairo by water. We apprehend that no boat would venture down a ſtream moving even ſix feet in a ſecond, and none could row up if the velocity was three feet. As the waters begin to decreaſe about the 10th of Sep-

September, we muſt conclude that the water then flowing paſt Cairo had left Abyſſinia when the rains had greatly abated. Judging in this way, we muſt ſtill allow the ſtream a velocity of more than ſix feet. Had the firſt ſwell at Cairo been noticed in 1770 or 1771, we might have guefſed better. The year that Thevenot was in Egypt, the firſt ſwell of 8 peeks was obſerved Jan. 28. The caliſh was opened for 14 peeks on Auguſt 14th, and the waters began to decreaſe on September 23d, having riſen to 21½ peeks. We may ſuppoſe a ſimilar progreſs at Cairo correſponding to Mr Bruce's obſervations at Gondar, and date every thing five days earlier.

We underſtand that ſome of our gentlemen ſtationed far up the Ganges have had the curioſity to take notes of the ſwellings of that river, and compare them with the overflowings at Calcutta, and that their obſervations are about to be made public. Such accounts are valuable additions to our practical knowledge, and we ſhall not neglect to inſert the information in ſome kindred article of this work.

The ſame mountains which attract the tropical vapours, and produce the fertilizing inundations of the Nile, perform the ſame office to the famous Niger, whoſe exiſtence has often been accounted fabulous, and with whoſe courſe we have very little acquaintance. The reſearches of the gentlemen of the African aſſociation render its exiſtence no longer doubtful, and have greatly excited the public curioſity. For a farther account of its track, ſee NIGER.

From the great number, and the very moderate ſize, of the rivers which fall into the Atlantic Ocean all the way ſouth of the Gambia, we conclude that the weſtern ſhore is the moſt elevated, and that the mountains are at no great diſtance inland. On the other hand, the rivers at Melinda and Sofala are of a magnitude which indicate a much longer courſe. But of all this we ſpeak with much uncertainty.

The frame-work (ſo to call it) of America is better known, and is ſingular.

A chain of mountains begins, or at leaſt is found, in longitude 110° weſt of London, and latitude 40° north, on the northern confines of the kingdom of Mexico, and ſtretching ſouthward through that kingdom, forms the ridge of the neck of land which ſeparates North from South America, and keeping almoſt cloſe to the ſhore, ranges along the whole weſtern coaſt of South America, terminating at Cape Horn. In its courſe it ſends off branches, which after ſeparating from it for a few leagues, rejoin it again, incloſing valleys of great extent from north to ſouth, and of prodigious elevation. In one of theſe, under the equatorial ſun, ſtands the city of Quito, in the midſt of extenſive fields of barley, oats, wheat, and gardens, containing apples, pears, and gooſeberries, and in ſhort all the grains and fruits of the cooler parts of Europe; and although the vine is alſo there in perfection, the olive is wanting. Not a dozen miles from it in the low countries, the ſugar-cane, the indigo, and all the fruits of the torrid zone, find their congenial heat, and the inhabitants ſwelter under a burning ſun. At as ſmall a diſtance on the other hand tower aloft the pinacles of Pichincha, Corambourou, and Chemboracaô, crowned with never melting ſnows.

The individual mountains of this ſtupendous range not only exceed in height all others in the world (if we except the Peak of Teneriffe, Mount Ætna, and Mount Blanc); but they are ſet down on a baſe incomparably more elevated than any other country. They cut off therefore all communication between the Pacific Ocean and the inland continent; and no rivers are to be found on the weſt coaſt of South America which have any conſiderable length of courſe or body of waters. The country is drained, like Africa, in the oppoſite direction. Not 100 miles from the city of Lima, the capital of Peru, which lies almoſt on the ſea ſhore, and juſt at the foot of the high Cordilleras, ariſes out of a ſmall lake the Maragnon or Amazon's river, which, after running northward for about 100 miles, takes an eaſterly direction, and croſſes nearly the broadeſt part of South America, and falls into the great weſtern ocean at Para, after a courſe of not leſs than 3500 miles. In the firſt half of its deſcent it receives a few middle-ſized rivers from the north, and from the ſouth it receives the great river Combos, ſpringing from another little lake not 50 miles diſtant from the head of the Maragnon, and incloſing between them a wide extent of country. Then it receives the Yuta, the Yuerva, the Cuchivara, and Parana Mire, each of which is equal to the Rhine; and then the Madeira, which has flowed above 1300 miles. At their junction the breadth is ſo great, that neither ſhore can be ſeen by a perſon ſtanding up in a canoe; ſo that the united ſtream muſt be about 6 miles broad. In this majeſtic form it rolls along at a prodigious rate through a flat country, covered with impenetrable foreſts, and moſt of it as yet untrodden by human feet. Mr Condamine, who came down the ſtream, ſays, that all is ſilent as the deſert, and the wild beaſts and numberleſs birds crowd round the boat, eyeing it as ſome animal of which they did not ſeem afraid. The bed was cut deep through an equal and yielding ſoil, which ſeemed rich in every part, if he could judge by the vegetation, which was rank in the extreme. What an addition this to the poſſible population of this globe! A narrow ſlip along each bank of this mighty river would equal in ſurface the whole of Europe, and would probably exceed it in general fertility: and although the velocity in the main ſtream was great, he obſerved that it was extremely moderate, nay almoſt ſtill, at the ſides; ſo that in thoſe parts where the country was inhabited by men, the Indians paddled up the river with perfect eaſe. Boats could go from Para to near the mouth of the Madeira in 38 days, which is near 1200 miles.

Mr Condamine made an obſervation during his paſſage down the Maragnon, which is extremely curious and inſtructive, although it puzzled him very much. He obſerved that the tide was ſenſible at a vaſt diſtance from the mouth: It was very conſiderable at the junction of the Madeira; and he ſuppoſes that it might have been obſerved much farther up. This appeared to him very ſurpriſing, becauſe there could be no doubt but that the ſurface of the water there was higher by a great many feet than the ſurface of the flood of the Atlantic ocean at the mouth of the river. It was therefore very natural for him to aſcribe the tide in the Maragnon to the immediate action of the moon on its waters; and this explanation was the more reaſonable, becauſe the river extends in the direction of terreſtrial longitude, which by the Newtonian theory is moſt favourable to the production of a tide. Journeying as he

did in an Indian canoe, we cannot suppose that he had much leisure or conveniency for calculations, and therefore are not surprised that he did not see that even this circumstance was of little avail in so small or shallow a body of water. He carefully noted, however, the times of high and low water as he passed along. When arrived at Para, he found not only that the high water was later and later as we are farther from the mouth, but he found that at one and the same instant there were several points of high water between Para and the confluence of the Madeira, with points of low water intervening. This conclusion was easily drawn from his own observations, although he could not see at one instant the high waters in different places. He had only to compute the time of high water at a particular spot, on the day he observed it at another; allowing, as usual, for the moon's change of position. The result of his observations therefore was, that the surface of the river was not an inclined plane whose slope was lessened by the tide of flood at the mouth of the river, but that it was a waving line, and that the propagation of the tide up the river was nothing different from the propagation of any other wave. We may conceive it clearly, though imperfectly, in this way. Let the place be noted where the tide happens 12 hours later than at the mouth of the river. It is evident that there is also a tide at the very mouth at the same instant; and, since the ocean tide had withdrawn itself during the time that the former tide had proceeded so far up the river, and the tide of ebb is successively felt above as well as the tide of flood, there must be a low water between these two high waters.

Newton had pointed out this curious fact, and observed that the tide at London-Bridge, which is 43 feet above the sea, is not the same with that at Gravesend, but the preceding tide (See *Phil. Transf.* 67.) This will be more particularly insisted on in another place.

Not far from the head of the Maragnon, the Cordilleras send off a branch to the north-east, which reaches and ranges along the shore of the Mexican Gulf, and the Rio Grande de Sta Martha occupies the angle betweeen the ridges.

Another ridge ranges with interruptions along the east coast of Terra Firma, so that the whole waters of this country are collected into the Oroonoko. In like manner the north and east of Brasil are hemmed in by mountainous ridges, through which there is no considerable passage; and the ground sloping backwards, all the waters of this immense track are collected from both sides by many considerable rivers into the great river Paraguay, or Rio de la Plata, which runs down the middle of this country for more than 1400 miles, and falls into the sea through a vast mouth in latitude 35°.

Thus the whole of South America seems as if it had been formerly surrounded by a mound, and been a great bason. The ground in the middle, where the Parama, the Madeira, and the Plata, take their rise, is an immense marsh, uninhabitable for its exhalations, and quite impervious in its present state.

The manner in which the continent of North America is watered, or rather drained, has also some peculiarities. By looking at the map, one will observe first of all a general division of the whole of the best known part into two, by the valleys in which the beds of the river St Laurence and Mississippi are situated. The head of this is occupied by a singular series of fresh water seas or lakes, viz. the lake Superior and Michigan, which empty themselves into lake Huron by two cataracts. This again runs into lake Erie by the river Detroit, and the Erie pours its waters into the Ontario by the famous fall of Niagara, and from the Ontario proceeds the great river St Laurence.

The ground to the south-west of the lakes Superior and Erie is somewhat lower, and the middle of the valley is occupied by the Mississippi and the Missoure, which receive on both sides a number of smaller streams, and having joined, proceed to the south, under the name Mississippi. In latitude 37, this river receives into its bed the Ohio, a river of equal magnitude, and the Cherokee river, which drains all the country lying at the back of the United States, separated from them by the ranges of the Apalachian mountains. The Mississippi is now one of the chief rivers on the globe, and proceeds due south, till it falls into the Mexican bay through several shifting mouths, which greatly resemble those of the Danube and the Nile, having run above 1200 miles.

The elevated country between this bed of the Mississippi and St Laurence and the Atlantic ocean is drained on the east side by a great number of rivers, some of which are very considerable, and of long course; because instead of being nearly at right angles to the coast, as in other countries, they are in a great measure parallel to it. This is more remarkably the case with Hudson's river, the Delaware, Patomack, Rapahanoc, &c. Indeed the whole of North America seems to consist of ribs or beams laid nearly parallel to each other from north to south, and the rivers occupy the interstices. All those which empty themselves into the bay of Mexico are parallel and almost perfectly straight, unlike what are seen in other parts of the world. The westermost of them all, the North River, as it is named by the Spaniards, is nearly as long as the Mississippi.

We are very little informed as yet of the distribution of rivers on the north-west coast of America, or the course of those which run into Hudson's and Baffin's bay.

Of the greatest rivers.

The Maragnon is undoubtedly the greatest river in the world, both as to length of run and the vast body of water which it rolls along. The other great rivers succeed nearly in the following order.

Maragnon,	Amur,
Senegal,	Oroonoko.
Nile,	Ganges,
St Laurence,	Euphrates,
Hoangho,	Danube,
Rio de la Plata,	Don,
Yenisey,	Indus,
Mississippi,	Dnieper,
Volga,	Duina,
Oby,	&c.

We have been much assisted in this account of the course of rivers, and their distribution over the globe, by a beautiful planisphere or map of the world published by Mr Bode astronomer royal at Berlin. The ranges of mountains are there laid down with philosophical discernment and precision; and we recommend it to the

notice of our geographers. We cannot divine what has caused Mr Buffon to say that the course of most rivers is from east to west or from west to east. No physical point of his system seems to require it, and it needs only that we look at his own map to see its falsity. We should naturally expect to find the *general* course of rivers nearly perpendicular to the line of sea-coast; and we find it so; and the chief exceptions are in opposition to Mr Buffon's assertion. The structure of America is so particular, that *very few* of its rivers have their general course in this direction. We proceed now to consider the motion of rivers; a subject which naturally resolves itself into two parts, *theoretical* and *practical*. Theory.

Part I. THEORY of the MOTION of RIVERS and CANALS.

THE importance of this subject needs no commentary. Every nation, every country, every city, is interested in it. Neither our wants, our comforts, nor our pleasures, can dispense with an ignorance of it. We must conduct their waters to the centre of our dwellings; we must secure ourselves against their ravages; we must employ them to drive those machines which, by compensating for our personal weakness, make a few able to perform the work of thousands; we employ them to water and fertilize our fields, to decorate our mansions, to cleanse and embellish our cities, to preserve or extend our demesnes, to transport from county to county every thing which necessity, convenience, or luxury, has rendered precious to man: for these purposes we must confine and govern the mighty rivers, we must preserve or change the beds of the smaller streams, draw off from them what shall water our fields, drive our machines, or supply our houses. We must keep up their waters for the purposes of navigation, or supply their places by canals; we must drain our fens, and defend them when drained; we must understand their motions, and their mode of secret, slow, but unceasing action, that our bridges, our wharfs, our dikes, may not become heaps of ruins. Ignorant how to proceed in these daily recurring cases, how often do we see projects of high expectation and heavy expence fail of their object, leaving the state burdened with works not only useless but frequently hurtful?

This has long been a most interesting subject of study in Italy, where the fertility of their fields is not more indebted to their rich soil and happy climate, than to their numerous derivations from the rivers which traverse them: and in Holland and Flanders, where their very existence requires unceasing attention to the waters, which are every moment ready to swallow up the inhabitants; and where the inhabitants, having once subdued this formidable enemy, have made those very waters their indefatigable drudges, transporting through every corner of the country the materials of the most extensive commerce on the face of this globe.

Such having been our incessant occupations with moving waters, we should expect that while the operative artists are continually furnishing facts and experiments, the man of speculative and scientific curiosity, excited by the importance of the subject, would ere now have made considerable progress in the science; and that the professional engineer would be daily acting from established principle, and be seldom disappointed in his expectations. Unfortunately the reverse of this is nearly the true state of the case; each engineer is obliged to collect the greatest part of his knowledge from his own experience, and by many dear-bought lessons, to direct his future operations, in which he still proceeds with anxiety and hesitation: for we have not yet acquired principles of theory, and experiments have not yet been collected and published, by which an empirical practice might be safely formed. Many experiments of inestimable value are daily made; but they remain with their authors, who seldom have either leisure, ability, or generosity, to add them to the public stock.

15 This science as yet in its infancy.

The motion of waters has been really so little investigated as yet, that hydraulics may still be called a new study. We have merely skimmed over a few common notions concerning the motions of water; and the mathematicians of the first order seem to have contented themselves with such views as allowed them to entertain themselves with elegant applications of calculus. This, however, has not been their fault. They rarely had any opportunity of doing more, for want of a knowledge of facts. They have made excellent use of the few which have been given them; but it required much labour, great variety of opportunity, and great expence, to learn the multiplicity of things which are combined even in the simplest cases of water in motion. These are seldom the lot of the mathematician; and he is without blame when he enjoys the pleasures within his reach, and cultivates the science of geometry in its most abstracted form. Here he makes a progress which is the boast of human reason, being almost insured from error by the intellectual simplicity of his subject. But when we turn our attention to material objects, and without knowing either the size and shape of the elementary particles, or the laws which nature has prescribed for their action, presume to foresee their effects, calculate their exertions, direct their actions, what must be the consequence? Nature shows her independence with respect to our notions, and, always faithful to the laws which are injoined, and of which we are ignorant, she never fails to thwart our views, to disconcert our projects, and render useless all our efforts.

16 Proper mode of investigation.

To wish to know the nature of the elements is vain, and our gross organs are insufficient for the study. To suppose what we do not know, and to fancy shapes and sizes at will; this is to raise phantoms, and will produce a system, but will not prove a foundation, for any science. But to interrogate Nature herself, study the laws which she so faithfully observes, catch her, as we say, in the fact, and thus wrest from her the secret; this is the only way to become her master, and it is the only procedure consistent with good sense. And we see, that soon after Kepler detected the laws of the planetary motions, when Galileo discovered the uniform acceleration of gravity, when Paschal discovered the pressure of the atmosphere, and Newton discovered the laws of attraction and the track of a ray of light; astronomy, mechanics, hydrostatics, chemistry, optics, quickly became

Theory.

came bodies of found doctrine; and the deductions from their respective theories were found fair representations of the phenomena of nature. Whenever a man has discovered a law of nature, he has laid the foundation of a science, and he has given us a new mean of subjecting to our service some element hitherto independent: and so long as groups of natural operations follow a route which appears to us whimsical, and will not admit our calculations, we may be assured that we are ignorant of the principle which connects them all, and regulates their procedure.

17 Our ignorance of the general laws of this motion,

This is remarkably the case with several phenomena in the motions of fluids, and particularly in the motion of water in a bed or conduit of any kind. Although the first geniuses of Europe have for this century past turned much of their attention to this subject, we are almost ignorant of the *general laws* which may be observed in their motions. We have been able to select very few points of resemblance, and every case remains nearly an individual. About 150 years ago we discovered, by experience only, the quantity and velocity of water issuing from a small orifice, and, after much labour, have extended this to any orifice; and this is almost the whole of our confidential knowledge. But as to the uniform course of the streams which water the face of the earth, and the maxims which will certainly regulate this agreeably to our wishes, we are in a manner totally ignorant. Who can pretend to say what is the velocity of a river of which you tell him the breadth, the depth, and the declivity? Who can say what swell will be produced in different parts of its course, if a dam or weir of given dimensions be made in it, or a bridge be thrown across it? or how much its waters will be raised by turning another stream into it, or sunk by taking off a branch to drive a mill? Who can say with confidence what must be the dimensions or slope of this branch, in order to furnish the water that is wanted, or the dimensions and slope of a canal which shall effectually drain a fenny district? Who can say what form will cause or will prevent the undermining of banks, the forming of elbows, the pooling of the bed, or the deposition of sands? Yet these are the most important questions.

18 And the causes of it.

The causes of this ignorance are the want or uncertainty of our principles; the falsity of our only theory, which is belied by experience; and the small number of proper observations or experiments, and difficulty of making such as shall be serviceable. We have, it is true, made a few experiments on the efflux of water from small orifices, and from them we have deduced a sort of theory, dependant on the fall of heavy bodies and the laws of hydrostatic pressure. Hydrostatics is indeed founded on very simple principles, which give a very good account of the laws of the quiescent equilibrium of fluids, in consequence of gravity and perfect fluidity. But by what train of reasoning can we connect these with the phenomena of the uniform motion of the waters of a river or open stream, which can derive its motion only from the slope of its surface, and the modifications of this motion or its velocity only from the width and depth of the stream? These are the only circumstances which can distinguish a portion of a river from a vessel of the same size and shape, in which, however, the water is at rest. In both, gravity is the sole cause of pressure and motion; but there must be some circumstance peculiar to running waters which modifies the exertions of this active principle, and which, when discovered, must be the basis of hydraulics, and must oblige us to reject every theory founded on fancied hypotheses, and which can only lead to absurd conclusions: and surely absurd consequences, when legitimately drawn, are complete evidence of improper principles.

When it was discovered experimentally, that the velocities of water issuing from orifices at various depths under the surface were as the square roots of those depths, and the fact was verified by repeated experiments, this principle was immediately and without modification applied to every motion of water. Mariotte, Varignon, Guglielmini, made it the basis of complete systems of hydraulics, which prevail to this day, after having received various amendments and modifications. The same reasoning obtains through them all, though frequently obscured by other circumstances, which are more perspicuously expressed by Guglielmini in his Fundamental Theorems.

He considers every point P (fig. 1.) in a mass of fluid as an orifice in the side of a vessel, and conceives the particle as having a tendency to move with the same velocity with which it would issue from the orifice. Therefore, if a vertical line APC be drawn thro' that point, and if this be made the axis of a parabolic ADE, of which A at the surface of the fluid is the vertex, and AB (four times the height through which a heavy body would fall in a second) is the parameter, the velocity of this particle will be represented by the ordinate PD of this parabola; that is, PD is the space which it would uniformly describe in a second.

From this principle is derived the following theory of running waters.

Let DC (fig. 2.) be the horizontal bottom of a reservoir, to which is joined a sloping channel CK of uniform breadth, and let AB be the surface of the standing water in the reservoir. Suppose the vertical plane BC pierced with an infinity of holes, through each of which the water issues. The velocity of each filament will be that which is acquired by falling from the surface AB †. The filament C, issuing with this velocity, will then glide down the inclined plane like any other heavy body; and (by the common doctrine of the motion down an inclined plane) when it has arrived at F, it will have the same velocity which it would have acquired by falling through the height OF, the point O being in the horizontal plane AB produced. The same may be said of its velocity when it arrives at H or K. The filament immediately above C will also issue with a velocity which is in the subduplicate ratio of its depth, and will then glide down above the first filament. The same may be affirmed of all the filaments; and of the superficial filament, which will occupy the surface of the descending stream.

† S. Guglielmini's Hydraulics.

21.

From this account of the genesis of a running stream of water, we may fairly draw the following consequences.

1. The velocity of any particle R, in any part of the stream, is that acquired by falling from the horizontal plane AN.

2. The velocity at the bottom of the stream is everywhere greater than anywhere above it, and is least of all at the surface.

3. The velocity of the stream increases continually as the stream recedes from its source.

4. The depths EF, GH, &c. in different parts of the ſtream, will be nearly in the inverſe ſubduplicate ratio of the depths under the ſurface AN: for ſince the ſame quantity of water is running through every ſection EF and GH, and the channel is ſuppoſed of uniform breadth, the depth of each ſection muſt be inverſely as the velocity of the water paſſing through it. This velocity is indeed different in different filaments of the ſection; but the mean velocity in each ſection is in the ſubduplicate ratio of the depth of the filament under the ſurface AB. Therefore the ſtream becomes more ſhallow as it recedes from the ſource; and in conſequence of this the difference between LH and MG continually diminiſhes, and the velocities at the bottom and ſurface of the ſtream continually approach to equality, and at a great diſtance from the ſource they differ inſenſibly.

5. If the breadth of the ſtream be contracted in any part, the depth of the running water will be increaſed in that part, becauſe the ſame quantity muſt ſtill paſs through; but the velocity at the bottom will remain the ſame, and that at the ſurface will be leſs than it was before; and the area of the ſection will be increaſed on the whole.

6. Should a ſluice be put acroſs the ſtream, dipping a little into the water, the water muſt immediately riſe on the upper ſide of the ſluice till it riſes above the level of the reſervoir, and the ſmalleſt immerſion of the ſluice will produce this effect. For by lowering the ſluice, the area of the ſection is diminiſhed, and the velocity cannot be increaſed till the water heap up to a greater height than the ſurface of the reſervoir, and this acquires a preſſure which will produce a greater velocity of efflux through the orifice left below the ſluice.

7. An additional quantity of water coming into this channel will increaſe the depth of the ſtream, and the quantity of water which it conveys; but it will not increaſe the velocity of the bottom filaments, unleſs it comes from a higher ſource.

All theſe conſequences are contrary to experience, and ſhow the imperfection, at leaſt, of the explanation.

The third conſequence is of all the moſt contrary to experience. If any one will but take the trouble of following a ſingle brook from its ſource to the ſea, he will find it moſt rapid in its beginnings among the mountains, gradually ſlackening its pace as it winds among the hills and gentler declivities, and at laſt creeping ſlowly along through the flat grounds, till it is checked and brought to reſt by the tides of the ocean.

Nor is the ſecond conſequence more agreeable to obſervation. It is univerſally found, that the velocity of the ſurface in the middle of the ſtream is the greateſt of all, and that it gradually diminiſhes from thence to the bottom and ſides.

And the firſt conſequence, if true, would render the running waters on the ſurface of this earth the inſtruments of immediate ruin and deſtitution. If the waters of our rivers, in the cultivated parts of a country, which are two, three, and four hundred feet lower than their ſources, run with the velocity due to that height, they would in a few minutes lay the earth bare to the very bones.

The velocities of our rivers, brooks, and rills, being ſo greatly inferior to what this theory aſſigns to them the other conſequences are equally contrary to experience. When a ſtream has its ſection diminiſhed by narrowing the channel, the current increaſes in depth, and this is always accompanied by an increaſe of velocity through the whole of the ſection, and moſt of all at the ſurface; and the area of the ſection does not increaſe, but diminiſhes, all the phenomena, thus contradicting in every circumſtance the deduction from the theory; and when the ſection has been diminiſhed by a ſluice let down into the ſtream, the water gradually heaps up on the upper ſide of the ſluice, and, by its preſſure, produces an acceleration of the ſtream below the ſluice, in the ſame way as if it were the beginning of a ſtream, as explained in the theory. The velocity now is compoſed of the velocity preſerved from the ſource and the velocity produced by this ſubordinate accumulation; and this accumulation and velocity continually increaſe, till they become ſuch that the whole ſupply is again diſcharged through this contracted ſection: any additional water not only increaſes the quantity carried along the ſtream, but alſo increaſes the velocity, and therefore the ſection does not increaſe in the proportion of the quantity.

Theory.

23 The theory however, has been generally followed by the writers on the ſubject,

It is ſurpriſing that a theory really founded on a conceit, and which in every the moſt familiar and obvious circumſtance is contradicted by facts, ſhould have met with ſo much attention. That Varignon ſhould immediately catch at this notion of Guglielmini, and make it the ſubject of many elaborate analytical memoirs, is not to be wondered at. This author only wanted *donner priſe au calcul*; and it was a uſual joke among the academicians of Paris, when any new theorem was invented, *donnons le à Varignon à generaliſer*. But his numerous theorems and corollaries were adopted by all, and ſtill make the ſubſtance of the preſent ſyſtems of hydraulics. Graveſande, Muſhenbroek, and all the elementary treatiſes of natural philoſophy, deliver no other doctrines; and Belidor, who has been conſidered as the firſt of all the ſcientific engineers, details the ſame theory in his great work the *Architecture Hydraulique*.

24 Though ſome of the more ingenious ſaw its defects, and attempted to ſupply them.

Guglielmini was, however, not altogether the dupe of his own ingenuity. He was not only a pretty good mathematician, but an aſſiduous and ſagacious obſerver. He had applied his theory to ſome important caſes which occurred in the courſe of his profeſſion as inſpector of the rivers and canals in the Milaneſe, and to the courſe of the Danube; and could not but perceive that great corrections were neceſſary for making the theory quadrate in ſome tolerable manner with obſervation; and he immediately ſaw that the motion was greatly obſtructed by inequalities of the canal, which gave to the contiguous filaments of the ſtream tranſverſe motions, which thwarted and confuſed the regular progreſs of the reſt of the ſtream, and thus checked its general progreſs. Theſe obſtructions, he obſerved, were moſt effectual in the beginning of its courſe, while yet a ſmall rill, running among ſtones, and in a very unequal bed. The whole ſtream being ſmall, the inequalities bore a great proportion to it, and thus the general effect was great. He alſo ſaw that the ſame cauſes (theſe tranſverſe motions produced by the unequal bottom) chiefly affected the contiguous filaments, and were the reaſons why the velocity at the ſides and bottom was ſo much diminiſhed as to be leſs than the ſuperficial velocity, and that even this might come to be

Theory. diminiſhed by the ſame cauſe. For he obſerved, that the general ſtream of a river is frequently compoſed of a ſort of boiling or tumbling motion, by which maſſes of water are brought up to the ſurface and again deſcend. Every perſon muſt recollect ſuch appearances in the freſhes of a muddy river; and in this way Guglielmini was enabled to account in ſome meaſure for the diſagreement of his theory with obſervation.

Mariotte had obſerved the ſame obſtructions even in the ſmoothest glaſs pipes. Here it could not be aſcribed to the checks occaſioned by tranſverſe motions. He therefore aſcribed it to friction, which he ſuppoſed to diminiſh the motion of fluid bodies in the ſame manner as of ſolids: and he thence concludes, that the filaments which immediately rub on the ſides of the tube have their velocity gradually diminiſhed; and that the filaments immediately adjoining to theſe, being thus obliged to paſs over them or outſtrip them, rub upon them, and have their own velocity diminiſhed in like manner, but in a ſmaller degree; and that the ſucceeding filaments towards the axis of the tube ſuffer ſimilar but ſmaller diminutions. By this means the whole ſtream may come to have a ſmaller velocity; and at any rate the medium velocity by which the quantity diſcharged is determined, is ſmaller than it would have been independent of friction.

Guglielmini adopted this opinion of Mariotte, and in his next work on the Motion of Rivers, conſidered this as the *chief* cauſe of the retardation; and he added a third circumſtance, which he conſidered as of no leſs conſequence, the viſcidity or tenacity of water. He obſerves that ſyrup, oil, and other fluids, where this viſcidity is more remarkable, have their motions prodigiouſly retarded by it, and ſuppoſes that water differs from them only in the degree in which it poſſeſſes this quality: and he ſays, that by this means not only the particles which are moving more rapidly have their motions diminiſhed by thoſe in their neighbourhood which move ſlower, but that the filaments alſo which would have moved more ſlowly are accelerated by their more active neighbours; and that in this manner the ſuperficial and inferior velocities are brought nearer to an equality. But this will never account for the univerſal fact, that the ſuperficial particles are the ſwifteſt of all. The ſuperficial particles, ſays he, acquire by this means a greater velocity than the parabolic law allows them; the medium velocity is often in the middle of the depth; the numerous obſtacles, continually multiplied and repeated, cauſe the current to loſe the velocity acquired by the fall; the ſlope of the bottom then diminiſhes, and often becomes very ſmall, ſo that the force remaining is hardly able to overcome the obſtacles which are ſtill repeated, and the river is reduced almoſt to a ſtate of ſtagnation. He obſerves, that the Rheno, a river of the Milaneſe, has near its mouth a ſlope of no more than 50″, which he conſiders as quite inadequate to the taſk; and here he introduces another principle, which he conſiders as an eſſential part of the theory of open currents. This is, that there ariſes from the very depth of the ſtream a propelling force which reſtores a part of the loſt velocity. He offers nothing in proof of this principle, but uſes it to account for and explain the motion of waters in horizontal canals. The principle has been adopted by the numerous Italian writers on hydraulics, and, by various contrivances, interwoven with the parabolic theory, as it is called, of Guglielmini. Our reader may ſee it in various modifications in the *Idroſtatica e Idraulica* of P. Lecchi, and in the *Sperienze Idrauliche* of Michelotti. It is by no means diſtinct either in its origin or in the manner of its application to the explanation of phenomena, and ſeems only to ſerve for giving ſomething like conſiſtency to the vague and obſcure diſcuſſions which have been publiſhed on this ſubject in Italy. We have already remarked, that in that country the ſubject is particularly intereſting, and has been much commented upon. But the writers of England, France, and Germany, have not paid ſo much attention to it, and have more generally occupied themſelves with the motion of water in cloſe conduits, which ſeem to admit of a more preciſe application of mathematical reaſoning.

Some of thoſe have conſidered with more attention the effects of friction and viſcidity. Sir Iſaac Newton, with his uſual penetration, had ſeen diſtinctly the manner in which it behoved theſe circumſtances to operate. He had occaſion, in his reſearches into the mechaniſm of the celeſtial motions, to examine the famous hypotheſis of Deſcartes, that the planets were carried round the ſun by fluid vortices, and ſaw that there would be no end to uncertainty and diſpute till the *modus operandi* of theſe vortices was mechanically conſidered. He therefore employed himſelf in the inveſtigation of the manner in which the acknowledged powers of natural bodies, acting according to the received laws of mechanics, could produce and preſerve theſe vortices, and reſtore that motion which was expended in carrying the planets round the ſun. He therefore, in the ſecond book of the Principles of Natural Philoſophy, gives a ſeries of beautiful propoſitions, viz. 51, 52, &c. with their corollaries, ſhowing how the rotation of a cylinder or ſphere round its axis in the midſt of a fluid will excite a vertical motion in this fluid; and he aſcertains with mathematical preciſion the motion of every filament of this vortex.

He ſets out from the ſuppoſition that this motion is excited in the ſurrounding ſtratum of fluid in conſequence of a want of perfect lubricity, and aſſumes as an hypotheſis, that the initial reſiſtance (or diminution of the motion of the cylinder) which ariſes from this want of lubricity, is proportional to the velocity with which the ſurface of the cylinder is ſeparated from the contiguous ſurface of the ſurrounding fluid, and that the whole reſiſtance is proportional to the velocity with which the parts of the fluid are mutually ſeparated from each other. From this, and the equality of action and re-action, it evidently follows, that the velocity of any ſtratum of the vortex is the arithmetical medium between the velocities of the ſtrata immediately within and without it. For the intermediate ſtratum cannot be in equilibrio, unleſs it is as much preſſed forward by the ſuperior motion of the ſtratum within it, as it is kept back by the ſlower motion of the ſtratum without it.

This beautiful inveſtigation applies in the moſt perfect manner to every change produced in the motion of a fluid filament, in conſequence of the viſcidity and friction of the adjoining filaments; and a filament proceeding along a tube at ſome ſmall diſtance from the ſides has, in like manner, a velocity which is the medium between thoſe of the filaments immediately ſurrounding it.

heory.

it. It is therefore a problem of no very difficult solution to assign the law by which the velocity will gradually diminish as the filament recedes from the axis of a cylindrical tube. It is somewhat surprising that so neat a problem has never occupied the attention of the mathematicians during the time that these subjects were so assiduously studied; but so it is, that nothing precise has been published on the subject. The only approach to a discussion of this kind, is a Memoire of Mr Pitot, read to the academy of Paris in 1726, where he considers the velocity of efflux through a pipe. Here, by attending to the comparative superiority of the *quantity of motion* in large pipes, he affirms, that the total diminutions arising from friction will be (*cæteris paribus*) in the inverse ratio of the diameters. This was thankfully received by other writers, and is now a part of our hydraulic theories. It has not, however, been attended to by those who write on the motion of rivers, though it is evident that it is applicable to these with equal propriety; and had it been introduced, it would at once have solved all their difficulties, and particularly would have shown how an almost imperceptible declivity would produce the gentle motion of a great river, without having recourse to the unintelligible principle of Guglielmini.

Mr Couplet made some experiments on the motion of the water in the great main pipes of Versailles, in order to obtain some notions of the retardations occasioned by friction. They were found prodigious; but were so irregular, and unsusceptible of reduction to any general principle, (and the experiments were indeed so few that they were unfit for this reduction), that he could establish no theory.—What Mr Belidor established on them, and makes a sort of system to direct future engineers, is quite unworthy of attention.

Upon the whole, this branch of hydraulics, although of much greater practical importance than the conduct of water in pipes, has never yet obtained more than a vague, and, we may call it, slovenly attention from the mathematicians; and we ascribe it to their not having taken the pains to settle its first principles with the same precision as had been done in the other branch. They were, from the beginning, satisfied with a sort of applicability of mathematical principles, without ever making the application. Were it not that some would accuse us of national partiality, we would ascribe it to this, that Newton had not pointed out the way in this as in the other branch. For any intelligent reader of the performances on the motions of fluids in close vessels, will see that there has not a principle, nay hardly a step of investigation, been added to those which were used or pointed out by Sir Isaac Newton. He has nowhere touched this question, the motion of water in an open canal. In his theories of the tides, and of the propagation of waves, he had an excellent opportunity for giving at once the fundamental principles of motion in a free fluid whose surface was not horizontal. But, by means of some of those happy and shrewd guesses, in which, as Daniel Bernoulli says, he excelled all men, he saw the undoubted consequences of some palpable phenomenon which would answer all his present purposes, and therefore entered no farther into the investigation.

26 Were at improved since time.

The original theory of Guglielmini, or the principle adopted by him, that each particle of the vertical section of a running stream has a tendency to move as if it were issuing from an orifice at that depth under the surface, is false; and that it really does so in the face of a dam when the flood-gate is taken away, is no less so; and if it did, the subsequent motions would hardly have any resemblance to those which he assigns them. Were this the case, the exterior form of the cascade would be something like what is sketched in fig. 3. with an abrupt angle at B, and a concave surface BEG. This will be evident to every one who combines the greater velocity of the lower filaments with the slower motion of those which must slide down above them. But this greater advance of the lower filaments cannot take place without an expenditure of the water under the surface AB. The surface therefore sinks, and B instantly ceases to retain its place in the horizontal plane. The water does not successively flow forward from A to B, and then tumble over the precipice; but immediately upon opening the flood-gate, the water wastes from the space immediately behind it, and the whole puts on the form represented in fig. 4. consisting of the curve A *a* P *c* EG, convex from A to *c*, and concave from thence forward. The superficial water begins to accelerate all the way from A; and the particles may be supposed (for the present) to have acquired the velocity corresponding to their depth under the horizontal surface. This must be understood as nothing more than a vague sketch of the motions. It requires a very critical and intricate investigation to determine either the form of the upper curve or the motions of the different filaments. The place A, where the curvature begins, is of equally difficult determination, and is various according to the differences of depth and of inclination of the succeeding canal.

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Plate CCCCXXXIX.

27 Uncertainty of the theories when applied to practice exemplified.

We have given this sort of history of the progress which had been made in this part of hydraulics, that our readers might form some opinion of the many dissertations which have been written on the motion of rivers, and of the state of the arts depending on it. Much of the business of the civil engineer is intimately connected with it: and we may therefore believe, that since there was so little principle in the theories, there could be but very little certainty in the practical operations. The fact has been, that no engineer could pretend to say, with any precision, what would be the effect of his operations. One whose business had given him many opportunities, and who kept accurate and judicious registers of his own works, could pronounce, with some probability, how much water would be brought off by a drain of certain dimensions and a given slope, when the circumstances of the case happened to tally with some former work in which he had succeeded or failed; but out of the pale of his own experience he could only make a sagacious guess. A remarkable instance of this occurred not long ago. A small aqueduct was lately carried into Paris. It had been conducted on a plan presented to the academy, who had corrected it, and gave a report of what its performance would be. When executed in the most accurate manner, it was deficient in the proportion of five to nine. When the celebrated Desaguliers was employed by the city of Edinburgh to superintend the bringing in the water for the supply of the city, he gave a report on the plan which was to be followed. It was executed to his complete satisfaction; and the quantity of

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water delivered was about one-sixth of the quantity which he promised, and about one-eleventh of the quantity which the no less celebrated M'Lauria calculated from the same plan.

28 Necessity of particular experiments.

Such being the state of our theoretical knowledge (if it can be called by this name), naturalists began to be persuaded that it was but losing time to make any use of a theory so incongruous with observation, and that the only safe method of proceeding was to multiply experiments in every variety of circumstances, and to make a series of experiments in every important case, which should comprehend all the practicable modifications of that case. Perhaps circumstances of resemblance might occur, which would enable us to connect many of them together, and at last discover the principles which occasioned this connection; by which means a theory founded on science might be obtained. And if this point should not be gained, we might perhaps find a few general facts, which are modified in all these particular cases, in such a manner that we can still trace the general facts, and see the part of the particular case which depends on it. This would be the acquisition of what may be called an empirical theory, by which every phenomenon would be explained, in so far as the explanation of a phenomenon is nothing more than the pointing out the general fact or law under which it is comprehended; and this theory would answer every practical purpose, because we should confidently foresee what consequences would result from such and such premises; or if we should fail even in this, we should still have a series of experiments so comprehensive, that we could tell what place in the series would correspond to any particular case which might be proposed.

29 Labours of Michelotti and Bossut in this way.

There are two gentlemen, whose labours in this respect deserve very particular notice, professor Michelotti at Turin, and Abbé Bossut at Paris. The first made a prodigious number of experiments both on the motion of water through pipes and in open canals. They were performed at the expence of the sovereign, and no expence was spared. A tower was built of the finest masonry, to serve as a vessel from which the water was to issue through holes of various sizes, under pressures from 5 to 22 feet. The water was received into basons constructed of masonry and nicely lined with stucco, from whence it was conveyed in canals of brickwork lined with stucco, and of various forms and declivities. The experiments on the expence of water through pipes are of all that have yet been made the most numerous and exact, and may be appealed to on every occasion. Those made in open canals are still more numerous, and are no doubt equally accurate; but they have not been so contrived as to be so generally useful, being in general very unlike the important cases which will occur in practice, and they seem to have been contrived chiefly with the view of establishing or overturning certain points of hydraulic doctrine which were probably prevalent at the time among the practical hydraulists.

The experiments of Bossut are also of both kinds; and though on a much smaller scale than those of Michelotti, seem to deserve equal confidence. As far as they follow the same track, they perfectly coincide in their results, which should procure confidence in the other; and they are made in situations much more analogous to the usual practical cases. This makes them doubly valuable. They are to be found in his two volumes intitled *Hydrodynamique*. He has opened this path of procedure in a manner so new and so judicious, that he has in some measure the merit of such as shall follow him in the same path.

30 And the progressive experiments of De Buat.

This has been most candidly and liberally allowed him by the chevalier de Buat, who has taken up this matter where the Abbe Bossut left it, and has prosecuted his experiments with great assiduity; and we must now add with singular success. By a very judicious consideration of the subject, he hit on a particular view of it, which saved him the trouble of a minute consideration of the small internal motions, and enabled him to proceed from a very general and evident proposition, which may be received as the key to a complete system of practical hydraulics. We shall follow this ingenious author in what we have farther to say on the subject; and we doubt not but that our readers will think we do a service to the public by making these discussions of the chevalier de Buat more generally known in this country. It must not however be expected that we shall give more than a synoptical view of them, connected by such familiar reasoning as shall be either comprehended or confided in by persons not deeply versed in mathematical science.

Sect. I. *Theory of Rivers.*

31 His leading proposition.

It is certain that the motion of open streams must, in some respects, resemble that of bodies sliding down inclined planes perfectly polished; and that they would accelerate continually, were they not obstructed: but they are obstructed, and frequently move uniformly. This can only arise from an equilibrium between the forces which promote their descent and those which oppose it. Mr Buat, therefore, assumes the leading proposition, that

When water flows uniformly on any channel or bed, the accelerating force which obliges it to move is equal to the sum of all the resistances which it meets with, whether arising from its own viscidity, or from the friction of its bed.

This law is as old as the formation of rivers, and should be the key of hydraulic science. Its evidence is clear; and it is, at any rate, the basis of all uniform motion. And since it is so, there must be some considerable analogy between the motion in pipes and in open channels. Both owe their origin to an inequa- of pressure; both would accelerate continually, if nothing hindered; and both are reduced to uniformity by the viscidity of the fluid and the friction of the channel.

32 The subject of the following discussion proposed.

It will therefore be convenient to examine the phenomena of water moving in pipes by the action of its weight only along the sloping channel. But previous to this, we must take some notice of the obstruction to the entry of water into a channel of any kind, arising from the deflection of the many different filaments which press into the channel from the reservoir from every side. Then we shall be able to separate this diminution of motion from the sum total that is observed, and ascertain what part remains as produced by the subsequent obstructions.

We then shall consider the principle of uniform motion, the equilibrium between the power and the resistance. The power is the relative height of the column of fluid which tends to move along the inclined plane of its bed; the resistance is the friction of

Theory. of the bed, the viscidity of the fluid, and its adhesion to the sides. Here are necessarily combined a number of circumstances which must be gradually detached that we may see the effect of each, viz. the extent of the bed, its perimeter, and its slope. By examining the effects produced by variations of each of these separately, we discover what share each has in the general effect; and having thus analysed the complicated phenomenon, we shall be able to combine those its elements, and frame a formula which shall comprehend every circumstance, from the greatest velocity to the extinction of all motion, and from the extent of a river to the narrow dimensions of a quill. We shall compare this formula with a series of experiments in all this variety of circumstances, partly made by Mr Buat, and partly collected from other authors; and we shall leave the reader to judge of the agreement.

Confident that this agreement will be found most satisfactory, we shall then proceed to consider very cursorily the chief varieties which nature or art may introduce into these beds, the different velocities or the same stream, the intensity of the resistance produced by the inertia of the materials of the channel, and the force of the current by which it continually acts on this channel, tending to change either its dimensions or its form. We shall endeavour to trace the origin of these great rivers which spread like the branches of a vigorous tree, and occupy the surface even of a vast continent. We shall follow them in their course, unfold all their windings, study their train, and regimen, and point out the law of its stability; and we shall investigate the causes of their deviations and wanderings.

The study of these natural laws pleases the mind: but it answers a still greater purpose; it enables us to assist nature, and to hasten her operations, which our wants and our impatience often find too slow. It enables us to command the elements, and to force them to administer to our wants and our pleasures.

We shall therefore, in the next place, apply the knowledge which we may acquire to the solution of the most important hydraulic questions which occur in the practice of the civil engineer.

We shall consider the effects produced by a permanent addition to any river or stream by the union of another, and the opposite effect produced by any draught or offset, showing the elevation or depression produced up the stream, and the change made in the depth and velocity below the addition or offset.

We shall pay a similar attention to the temporary swells produced by freshes.

We shall ascertain the effects of straightening the course of a stream, which, by increasing its slope, must increase its velocity, and therefore sink the waters above the place where the curvature was removed, and diminish the tendency to overflow, while the same immediate consequence must expose the places farther down to the risk of floods from which they would otherwise have been free.

The effects of dams or weirs, and of bars, must then be considered; the gorge or swell which they produce up the stream must be determined for every distance from the weir or bar. This will furnish us with rules for rendering navigable or floatable such waters as have too little depth or too great slope. And it will appear that immense advantages may be thus derived, with a moderate expence, even from trifling brooks, if we will relinquish all prejudices, and not imagine that such conveyance is impossible, because it cannot be carried on by such boats and small craft as we have been accustomed to look at.

The effects of canals of derivation, the rules or maxims of draining, and the general maxims of embankment, come in the next place; and our discussions will conclude with remarks on the most proper forms for the entry to canals, locks, docks, harbours, and mouths of rivers, the best shape for the starlings of bridges and of boats for inland navigations, and such like subordinate but interesting particulars, which will be suggested by the general thread of discussion.

33 Natural velocity, expence and discharge through small orifices.

It is considered, as physically demonstrated (see HYDROSTATICS and HYDRAULICS), that water issuing from a small orifice in the bottom or side of a very large vessel, almost instantly acquires and maintains the velocity which a heavy body would acquire by falling to the orifice from the horizontal surface of the stagnant water. This we shall call its NATURAL VELOCITY. Therefore if we multiply the area of the orifice by this velocity, the product will be the bulk or quantity of the water which is discharged. This we may call the NATURAL EXPENCE of water, or the NATURAL DISCHARGE.

Let O represent the area or section of the orifice expressed in some known measure, and h its depth under the surface. Let g express the velocity acquired by a heavy body during a second by falling. Let V be the medium velocity of the water's motion, Q the quantity of water discharged during a second, and N the natural expence.

We know that V is equal to $\sqrt{2g}\times\sqrt{h}$. Therefore $N=O.\sqrt{2g}.\sqrt{h}$.

If these dimensions be all taken in English feet, we have $\sqrt{2g}$ very nearly equal to 8; and therefore $V=8\sqrt{h}$, and $N=O.8\sqrt{h}$.

But in our present business it is much more convenient to measure every thing by inches. Therefore since a body acquires the velocity of 32 feet 2 inches in a second, we have $2g=64$ feet 4 inches or 772 inches, and $\sqrt{2g}=27,78$ inches nearly $27\frac{1}{4}$ inches.

Therefore $V=\sqrt{772}\sqrt{h}$, $=27,78\sqrt{h}$, and $N=O.\sqrt{772}\sqrt{h}$, $=O.27,78\sqrt{h}$.

But it is also well known, that if we were to calculate the expence or dischage for every orifice by this simple rule, we should in every instance find it much greater than nature really gives us.

When water issues through a hole in a thin plate, the lateral columns, pressing into the hole from all sides, cause the issuing filaments to converge to the axis of the jet, and contract its dimensions at a little distance from the hole. And it is in this place of greatest contraction that the water acquires that velocity which we observe in our experiments, and which we assume as equal to that acquired by falling from the surface. Therefore, that our computed discharge may best agree with observation, it must be calculated on the supposition that the orifice is diminished to the size of this smallest section. But the contraction is subject to variations, and the dimensions of this smallest section are

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are at all times difficult to ascertain with precision. It is therefore much more convenient to compute from the real dimensions of the orifice, and to correct this computed discharge, by means of an actual comparison of the computed and effective discharges in a series of experiments made in situations resembling those cases which most frequently occur in practice. This correction or its cause, in the mechanism of those internal motions, is generally called CONTRACTION by the writers on hydraulics; and it is not confined to a hole in a thin plate: it happens in some degree in all cases where fluids are made to pass through narrow places. It happens in the entry into all pipes, canals, and sluices; nay even in the passage of water over the edge of a board, such as is usually set up on the head of a dam or weir, and even when this is immersed in water on both sides, as in a bar or keep, frequently employed for raising the waters of the level streams in Flanders, in order to render them navigable. We mentioned an observation § of Mr Buat to this effect, when he saw a gooseberry rise up from the bottom of the canal along the face of the bar, and then rapidly fly over its top. We have attempted to represent this motion of the filaments in these different situations.

34 Contraction.

§ See Hydrodynamics of Fluids, nº 67.

35 Motion of filaments in various particular situations.

Fig. 5. A shows the motion through a thin plate.

B shows the motion when a tube of about two diameters long is added, and when the water flows with a full mouth. This does not always happen in so short a pipe (and never in one that is shorter), but the water frequently detaches itself from the sides of the pipe, and flows with a contracted jet.

C shows the motion when the pipe projects into the inside of the vessel. In this case it is difficult to make it flow full.

D represents a mouth-piece fitted to the hole, and formed accordably to that shape which a jet would assume of itself. In this case all contraction is avoided, because the mouth of this pipe may be considered as the real orifice, and nothing now diminishes the discharge but a trifling friction of the sides.

E shows the motion of water over a dam or weir, where the fall is free or unobstructed; the surface of the lower stream being lower than the edge or sole of the waste-board.

F is a similar representation of the motion of water over what we would call a *bar* or *keep*.

36 And the effect of contraction determined.

It was one great aim of the experiments of Michelotti and Bossut to determine the effects of contraction in these cases. Michelotti, after carefully observing the form and dimensions of the natural jet, made various mouth-pieces resembling it, till he obtained one which produced the smallest diminution of the computed discharge, or till the discharge computed for the area of its smaller end approached the nearest to the effective discharge. And he at last obtained one which gave a discharge of 983, when the natural discharge would have been 1000. This piece was formed by the revolution of a trochoid round the axis of the jet, and the dimensions were as follow:

Diameter of the outer orifice	= 36
——— ——— inner orifice	= 46
Length of the axis	= 96

The results of the experiments of the Abbé Bossut and of Michelotti scarcely differ, and they are expressed in the following table:

N or the natural expence	10000	$=0.27,78\sqrt{h}$
Q for the thin plate fig. A almost at the surface	6526	$0.18,13\sqrt{h}$
Q for ditto at the depth of 8 feet	6195	$0.17,21\sqrt{h}$
Q for ditto at the depth of 16 feet	6173	$0.17,15\sqrt{h}$
Q for a tube 2 diameters long, fig. B.	8125	$0.22,57\sqrt{h}$
Q for ditto projecting inwards and flowing full	6814	$0.18,93\sqrt{h}$
Q for ditto with a contracted jet, fig. C.	5137	$0.14,27\sqrt{h}$
Q for the mouth-piece, fig. D.	9831	$0.27,31\sqrt{h}$
Q for a weir, fig. E.	9536	$0.26,49\sqrt{h}$
Q for a bar, fig. F.	9730	$0.27,03\sqrt{h}$

The numbers in the last column of this little table are the cubical inches of water discharged in a second when the height h is one inch.

It must be observed that the discharges assigned here for the weir and bar relate only to the contractions occasioned by the passage over the edge of the board. The weir may also suffer a diminution by the contractions at its two ends, if it should be narrower than the stream, which is generally the case, because the two ends are commonly of square masonry or woodwork. The contraction there is nearly the same with that at the edge of a thin plate. But this could not be introduced into this table, because its effect on the expence is the same in quantity whatever is the length of the waste-board of the weir.

37 Diminution of discharge through a sluice, &c.

In like manner, the diminution of discharge through a sluice could not be expressed here. When a sluice is drawn up, but its lower edge still remains under water, the discharge is contracted both above and at the sides, and the diminution of discharge by each is in proportion to its extent. It is not easy to reduce either of these contractions to computation, but they may be very easily observed. We frequently can observe the water, at coming out of a sluice into a mill-course, quit the edge of the aperture, and show a part of the bottom quite dry. This is always the case when the velocity of efflux is considerable. When it is very moderate, this place is occupied by an eddy water almost stagnant. When the head of water is 8 or 10 inches, and runs off freely, the space left between it and the sides is about $1\frac{1}{2}$ inches. If the sides of the entry have a slope, this void space can never appear; but there is always this tendency to convergence, which diminishes the quantity of the discharge.

It will frequently abridge computation very much to consider the water discharged in these different situations as moving with a common velocity, which we conceive as produced not by a fall from the surface of the fluid (which is exact only when the expence is equal to the natural expence), but by a fall h accommodated to the discharge: or it is convenient to know the height which would produce that very velocity which the water issues with in these situations.

And also, when the water is observed to be actually moving with a velocity V, and we know whether it is coming through a thin plate, through a tube, over a dam, &c. it is necessary to know the pressure or HEAD OF WATER h which has actually produced this velocity. It is convenient therefore to have the following numbers in readiness.

h for

h for the natural expence $= \frac{V^2}{772}$

h for a thin plate - $= \frac{V^2}{296}$

h for a tube 2 diam. long $= \frac{V^2}{505}$

h for a dam or weir - $= \frac{V^2}{726}$

h for a bar - $= \frac{V^2}{746}$

It was necessary to premise these FACTS in hydraulics, that we may be able in every case to distinguish between the force expended in the entry of the water into the conduit or canal, and the force employed in overcoming the resistances along the canal, and in preserving or accelerating its motion in it.

The motion of running water is produced by two causes; 1. The action of gravity; and, 2. The mobility of the particles, which makes them assume a level in confined vessels, or determines them to move to that side where there is a defect of pressure. When the surface is level, every particle is at rest, being equally pressed in all directions; but if the surface is not level, not only does a particle on the very surface tend by its own weight towards the lower side, as a body would slide along an inclined plane, but there is a force, external to itself, arising from a superiority of pressure on the upper end of the surface, which pushes this superficial particle towards the lower end; and this is not peculiar to the superficial particles, but affects every particle within the mass of water. In the vessel ACDE (fig. 6.), containing water with an inclined surface AE, if we suppose all frozen but the extreme columns AKHB, FGLE, and a connecting portion HKCDLG, it is evident, from hydrostatical laws, that the water on this connecting part will be pushed in the direction CD; and if the frozen mass BHGF were moveable, it would also be pushed along. Giving it fluidity will make no change in this respect; and it is indifferent what is the situation and shape of the connecting column or columns. The propelling force (MNF being horizontal) is the weight of the column AMNB. The same thing will obtain wherever we select the vertical columns. There will always be a force tending to push every particle of water in the direction of the declivity. The consequence will be, that the water will sink at one end and rise at the other, and its surface will rest in the horizontal position a O e, cutting the former in its middle O. This cannot be unless there be not only a motion of perpendicular descent and ascent of the vertical columns, but also a real motion of translation from K towards L. It perhaps exceeds our mathematical skill to tell what will be the motion of each particle. Newton did not attempt it in his investigation of the motion of waves, nor is it at all necessary here. We may, however, acquire a very distinct notion of its general effect. Let OPQ be a vertical plane passing through the middle point O. It is evident that every particle in PQ, such as P, is pressed in the direction QD, with a force equal to the weight of a single row of particles, whose length is the difference between the columns BH and FG. The force acting on the particle Q is, in like manner, the weight of a row of particles $=$AC—ED. Now if OQ, OA, OE, be divided in the same ratio, so that all the figures ACDE, BHGF, &c. may be similar, we see that the force arising solely from the declivity, and acting on each particle on the plane OQ, is proportional to its depth under the surface, and that the row of particles ACQDE, BHPGF, &c. which is to be moved by it, is in the same proportion. Hence it unquestionably follows, that the accelerating force on each particle of the row is the same in all. Therefore the whole plane OQ tends to advance forward together with the same velocity; and in the instant immediately succeeding, all these particles would be found again in a vertical plane indefinitely near to OQ; and if we sum up the forces, we shall find them the same as if OQ were the opening of a sluice, having the water on the side of D standing level with O, and the water on the other side standing at the height AC. This result is extremely different from that of the hasty theory of Guglielmini. He considers each particle in OQ as urged by an accelerating force proportional to its depth, it is true; but he makes it *equal* to the weight of the row OP, and never recollects that the greatest part of it is balanced by an opposite pressure, nor perceives that the force which is not balanced must be distributed among a row of particles which varies in the same proportion with itself. When these two circumstances are neglected, the result must be incompatible with observation. When the balanced forces are taken into the account of pressure, it is evident that the surface may be supposed horizontal, and that motion should obtain in this case as well as in the case of a sloping surface: and indeed this is Guglielmini's professed theory, and what he highly values himself on. He announces this discovery of a new principle, which he calls the energy of deep waters, as an important addition to hydraulics. It is owing to this, says he, that the great rivers are not stagnant at their mouths, where they have no perceptible declivity of surface, but, on the contrary, have greater energy and velocity than farther up, where they are shallower. This principle is the basis of his improved theory of rivers, and is insisted on at great length by all the subsequent writers. Buffon, in his theory of the earth, makes much use of it. We cannot but wonder that it has been allowed a place in the theory of rivers given in the great *Encyclopédie* of Paris, and in an article having the signature (O) of D'Alembert. We have been very anxious to show the falsity of this principle, because we consider it as a mere subterfuge of Guglielmini, by which he was able to patch up the mathematical theory which he had so hastily taken from Newton or Galileo; and we think that we have secured our readers from being misled by it, when we show that this energy must be equally operative when the surface is on a dead level. The absurdity of this is evident. We shall see by and by, that deep waters, when in actual motion, have an energy not to be found in shallow running waters, by which they are enabled to continue that motion: but this is not a moving principle; and it will be fully explained, as an immediate result of principles, not vaguely conceived and indistinctly expressed, like this of Guglielmini, but easily understood, and appreciable with the greatest precision. It is an energy common to all great bodies. Although they lose as much momentum in surmounting any obstacle as small ones, they lose but a small portion of their velocity. At present, employed only in consider-

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ing the progreſſive motion of an open ſtream, whoſe ſurface is not level, it is quite enough that we ſee that ſuch a motion muſt obtain, and that we ſee that there are propelling forces; and that thoſe forces ariſe *ſolely* from the want of a level ſurface, or from the ſlope of the ſurface; and that, with reſpect to any one particle, the force acting on it is proportional to the difference of level between each of the two columns (one on each ſide of the particle) which produce it. Were the ſurface level, there would be no motion; if it is not level, there will be motion; and this motion will be proportional to the want of level or the declivity of the ſurface: it is of no conſequence whether the bottom be level or not, or what is its ſhape.

Hence we draw a fundamental principle, that *the motion of rivers depends entirely on the ſlope of the ſurface.*

The SLOPE or declivity of any inclined plane is not properly expreſſed by the difference of height alone of its extremities; we muſt alſo conſider its length: and the meaſure of the ſlope muſt be ſuch that it may be the ſame while the declivity is the ſame. It muſt therefore be the ſame over the whole of any one inclined plane. We ſhall anſwer theſe conditions exactly, if we take for the meaſure of a ſlope the fraction which expreſſes the elevation of one extremity above the other divided by the length of the plane. Thus $\frac{AM}{AF}$ will expreſs the declivity of the plane AF.

39 When it is uniform the reſiſtance is equal to the accelerating force.

If the water met with no reſiſtance from the bed in which it runs, if it had no adheſion to its ſides and bottom, and if its fluidity were perfect, its gravity would accelerate its courſe continually, and the earth and its inhabitants would be deprived of all the advantages which they derive from its numberleſs ſtreams. They would run off ſo quickly, that our fields, dried up as ſoon as watered, would be barren and uſeleſs. No ſoil could reſiſt the impetuoſity of the torrents; and their accelerating force would render them a deſtroying ſcourge, were it not that, by kind Providence, the reſiſtance of the bed, and the viſcidity of the fluid, become a check which reins them in and ſets bounds to their rapidity. In this manner the friction on the ſides, which, by the viſcidity of the water, is communicated to the whole maſs, and the very adheſion of the particles to each other, and to the ſides of the channel, are the cauſes which make the reſiſtances bear a relation to the velocity; ſo that the reſiſtances augmenting with the velocities, come at laſt to balance the accelerating force. Then the velocity now acquired is preſerved, and the motion becomes uniform, without being able to acquire new increaſe, unleſs ſome change ſucceeds either in the ſlope or in the capacity of the channel. Hence ariſes the ſecond maxim in the motion of rivers, that *when a ſtream moves uniformly, the reſiſtance is equal to the accelerating force.*

As in the efflux of water through orifices, we paſs over the very beginnings of the accelerated motion, which is a matter of ſpeculative curioſity, and conſider the motion in a ſtate of permanency, depending on the head of water, the area of the orifice, the velocity, and the expence; ſo, in the theory of the uniform motion of rivers, we conſider the ſlope, the tranſverſe ſection or area of the ſtream, the uniform velocity, and the expence. It will be convenient to affix preciſe meanings to the terms which we ſhall employ.

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40 Terms precisely explained.

The SECTION of a ſtream is the area of a plane perpendicular to the direction of the general motion.

The reſiſtances ariſe ultimately from the action of the water on the internal ſurface of the channel, and muſt be proportional *(cæteris paribus)* to the extent of the action. Therefore if we unfold the whole edge of this ſection, which is rubbed as it were by the paſſing water, we ſhall have a meaſure of the extent of this action. In a pipe, circular or priſmatical, the whole circumference is acted on; but in a river or canal ACDQ (fig. 6.) the horizontal line *a* O *e*, which makes the upper boundary of the ſection *a* CD *e*, is free from all action. The action is confined to the three lines *a* C, CD, D *e*. We ſhall call this line *a* CD *e* the BORDER of the ſection.

The MEAN VELOCITY is that with which the whole ſection, moving equally, would generate a ſolid equal to the expence of the ſtream. This velocity is to be found perhaps but in one filament of the ſtream, and we do not know in which filament it is to be found.

Since we are attempting to eſtabliſh an empirical theory of the motion of rivers, founded entirely on experiment and palpable deductions from them; and ſince it is extremely difficult to make experiments on open ſtreams which ſhall have a preciſion ſufficient for ſuch an important purpoſe—it would be a moſt deſirable thing to demonſtrate an exact analogy between the mutual balancing of the acceleration and reſiſtance in pipes and in rivers; for in thoſe we can not only make experiments with all the deſired accuracy, and admitting preciſe meaſures, but we can make them in a number of caſes that are almoſt impracticable in rivers. We can increaſe the ſlope of a pipe from nothing to the vertical poſition, and we can employ every deſired degree of preſſure, ſo as to aſcertain its effect on the velocity in degrees which open ſtreams will not admit. The Chevalier de Buat has moſt happily ſucceeded in this demonſtration; and it is here that his good fortune and his penetration have done ſo much ſervice to practical ſcience.

41 The acceleration and reſiſtance of water in an horizontal tube,

Let AB (fig. 7.) be a horizontal tube, through which the water is impelled by the preſſure or HEAD DA. This head is the moving power; and it may be conceived as conſiſting of two parts, performing two diſtinct offices. One of them is employed in impreſſing on the water that velocity with which it *actually moves* in the tube. Were there no obſtructions to this motion, no greater head would be wanted; but there are obſtructions ariſing from friction, adheſion, and viſcidity. This requires force. Let this be the office of the reſt of the head of water in the reſervoir. There is but one allotment, appropriation, or repartition, of the whole head which will anſwer. Suppoſe E to be the point of partition, ſo that DE is the head neceſſary for impreſſing the actual velocity on the water (a head or preſſure which has a relation to the form or circumſtance of the entry, and the contraction which takes place there). The reſt EA is wholly employed in overcoming the ſimultaneous reſiſtances which take place along the whole tube AB, and is in equilibrio with this reſiſtance. Therefore if we apply at E a tube EC of the ſame length and diameter with AB, and

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and having the ſame degree of poliſh or roughneſs; and if this tube be inclined in ſuch a manner that the axis of its extremity may coincide with the axis of AB in the point C—we affirm that the velocity will be the ſame in both pipes, and that they will have the ſame expence; for the moving force in the ſloping pipe EC is compoſed of the whole weight of the column DE and the relative weight of the column EC; but this relative weight, by which alone it deſcends along the inclined pipe EC, is preciſely equal to the weight of a vertical column EA of the ſame diameter. Every thing therefore is equal in the two pipes, *viz.* the lengths, the diameters, the moving forces, and the reſiſtances; therefore the velocities and diſcharges will alſo be equal.

This is not only the caſe on the whole, but alſo in every part of it. The relative weight of any part of it EK is preciſely in equilibrio with the reſiſtances along that part of the pipe; for it has the ſame proportion to the whole relative weight that the reſiſtance has to the whole reſiſtance. Therefore *(and this is the moſt important circumſtance, and the baſis of the whole theory)* the pipe EC may be cut ſhorter, or may be lengthened to infinity, without making any change in the velocity or expence, ſo long as the propelling head DE remains the ſame.

Leaving the whole head DA as it is, if we lengthen the horizontal pipe AB to G, it is evident that we increaſe the reſiſtance without any addition of force to overcome it. The velocity muſt therefore be diminiſhed; and it will now be a velocity which is produced by a ſmaller head than DE: therefore if we were to put in a pipe of equal length at E, terminating in the horizontal line AG, the water will not run equally in both pipes. In order that it may, we muſt diſcover the diminiſhed velocity with which the water now actually runs along AG, and we muſt make a head DI capable of impreſſing this velocity at the entry of the pipe, and then inſert at I a pipe IH of the ſame length with AG. The expence and velocity of both pipes will now be the ſame (A).

What has now been ſaid of a horizontal pipe AB would have been equally true of any inclined pipe AB, A'B (fig. 8.) Drawing the horizontal line CB, we ſee that DC is the whole head or propelling preſſure for either pipe AB or A'B; and if DE is the head neceſſary for the actual velocity, EC is the head neceſſary for balancing the reſiſtances; and the pipe EF of the ſame length with AB, and terminating in the ſame horizontal line, will have the ſame velocity; and its inclination being thus determined, it will have the ſame velocity and expence whatever be its length.

43 Analogy between theſe pipes and rivers demonſtrated by De Buat.

Thus we ſee that the motion in any pipe, horizontal or ſloping, may be referred to or ſubſtituted for the motion in another inclined pipe, whoſe head of water, above the place of entry, is that productive of the actual velocity of the water in the pipe. Now, in this caſe, the accelerating force is equal to the reſiſtance: we may therefore conſider this laſt pipe as a river, of which the bed and the ſlope are uniform or conſtant, and the current in a ſtate of permanency; and we now may clearly draw this important concluſion, that pipes and open ſtreams, when in a ſtate of permanency, perfectly reſemble each other in the circumſtances which are the immediate cauſes of this permanency. The equilibrium between the accelerating force obtains not only in general, but takes place through the whole length of the pipe or ſtream, and is predicable of every individual tranſverſe ſection of either. To make this more palpably evident if poſſible, let us conſider a ſloping cylindrical pipe, the current of which is in a ſtate of permanency. We can conceive it as conſiſting of two half cylinders, an upper and a lower. Theſe are running together at an equal pace; and the filaments of each immediately contiguous to the ſeparating plane and to each other, are not rubbing on each other, nor affecting each others motions in the ſmalleſt degree. It is true that the upper half is preſſing on the lower, but in a direction perpendicular to the motion, and therefore not affecting the velocity; and we ſhall ſee preſently, that although the lower ſide of the pipe bears ſomewhat more preſſure than the other, the reſiſtances are not changed. (Indeed this odds of preſſure is accompanied with a difference of motion, which need not be conſidered at preſent; and we may ſuppoſe the pipe ſo ſmall or ſo far below the ſurface, that this ſhall be inſenſible). Now let us ſuppoſe, that in an inſtant the upper half cylinder is annihilated: We then have an open ſtream; and every circumſtance of accelerating force and of reſiſtance remains preciſely as it was. The motion muſt therefore continue as it did; and in this ſtate the only accelerating force is the ſlope of the ſurface. The demonſtration therefore is complete.

44 Conſequence.

From theſe obſervations and reaſonings we draw a general and important concluſion, "That the ſame pipe will be ſuſceptible of different velocities, which it will preſerve uniform to any diſtance, according as it has different inclinations; and each inclination of a pipe of given diameter has a certain velocity peculiar to itſelf, which will be maintained uniform to any diſtance what-

(A) We recommend it to the reader to make this diſtribution or allotment of the different portions of the preſſure very familiar to his mind. It is of the moſt extenſive influence in every queſtion of hydraulics, and will on every occaſion give him diſtinct conceptions of the internal procedure. Obvious as the thought ſeems to be, it has eſcaped the attention of all the writers on the ſubject. Lecchi, in his *Hydraulics* publiſhed in 1766, aſcribes ſomething like it to Daniel Bernoulli; but Bernoulli, in the paſſage quoted, only ſpeaks of the partition of preſſure in the inſtant of opening an orifice. Part of it, ſays he, is employed in accelerating the quieſcent water, and producing the velocity of efflux, and the remainder produces the preſſure (now diminiſhed) on the ſides of the veſſel. Bernoulli, Boſſut, and all the good writers, make this diſtribution in expreſs terms in their explanation of the motion of water through ſucceſſive orifices; and it is ſurpriſing that no one before the Chevalier de Buat ſaw that the reſiſtance ariſing from friction required a ſimilar partition of the preſſure; but though we ſhould call this good fortune, we muſt aſcribe to his great ſagacity and juſtneſs of conception the beautiful uſe that he has made of it: "*ſuum cuique.*"

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whatever; and this velocity increases continually, according to some law, to be discovered by theory or experiment, as the position of the pipe changes, from being horizontal till it becomes vertical; in which position it has the greatest uniform velocity possible relative to its inclination, or depending on inclination alone.

Let this velocity be called the TRAIN, or the RATE of each pipe.

45 Measure of the resistance to the motion with a given velocity.

It is evident that this principle is of the utmost consequence in the theory of hydraulics; for by experiment we can find the train of any pipe. It is in train when an increase of length makes no change in the velocity. If lengthening the pipe increases the velocity, the slope of the pipe is too great, and *vice versa*. And having discovered the train of a pipe, and observed its velocity, and computed the head productive of this velocity with the contraction at the entry, the remainder of the head, that is, the slope (for this is equivalent to EA), is the measure of the resistance. Thus we obtain the measure of the resistance to the motion with a given velocity in a pipe of given diameter. If we change only the velocity, we get the measure of the new resistance relative to the velocity; and thus discover the law of relation between the resistance and velocity. Then, changing only the diameter of the pipe, we get the measure of the resistance relative to the diameter. This is the aim of a prodigious number of experiments made and collected by Buat, and which we shall not repeat, but only give the results of the different parts of his investigation.

46 Results of De Buat's investigation on this subject.

We may express the slope of a pipe by the symbol $\frac{1}{s}$, 1 being an inch for instance, and s being the slant length of a pipe which is one inch more elevated at one end than at the other. Thus a river which has a declivity of an inch and a half in 120 fathoms or 8640 inches, has its slope $= \frac{1\frac{1}{2}}{8640}$, or $\frac{1}{5760}$. But in order to obtain the hydraulic slope of a conduit pipe, the heights of the reservoir and place of discharge being given, we must subtract from the difference of elevation the height or head of water necessary for propelling the water into any pipe with the velocity V, which it is supposed actually to have. This is $\frac{V^2}{505}$. The remainder d is to be considered as the height of the declivity, which is to be distributed equally over the whole length l of the pipe, and the slope is then $\frac{d}{l}$, $= \frac{1}{s}$.

There is another important view to be taken of the slope, which the reader should make very familiar to his thoughts. It expresses the proportion between the weight of the whole column which is in motion and the weight which is employed in overcoming the resistance; and the resistance to the motion of any column of water is equal to the weight of that column multiplied by the fraction $\frac{1}{s}$, which expresses its slope.

47 Of the resistances which bring the motions to a state of uniformity.

We come now to consider more particularly the resistances which in this manner bring the motions to a state of uniformity. If we consider the resistances which arise from a cause analogous to friction, we see that they must depend entirely on the inertia of the water. What we call the resistance is the diminution of a motion which *would* have obtained but for these resistances; and the best way we have of measuring them is by the force which we must employ in order to keep up or restore this motion. We estimate this motion by a progressive velocity, which we measure by the expence of water in a given time. We judge the velocity to diminish, when the quantity discharged diminishes; yet it may be otherwise, and probably is otherwise. The absolute velocity of many, if not all, of the particles, may even be increased; but many of the motions, being transverse to the general direction, the quantity of motion in this direction may be less, while the sum of the absolute motions of all the particles may be greater. When we increase the general velocity, it is not unreasonable to suppose that the impulses on all the inequalities are increased in this proportion; and the number of particles thus impelling and deflected at the same time will increase in the same proportion. The whole quantity therefore of these useless and lost motions will increase in the duplicate ratio of the velocities, and the force necessary for keeping up the motion will do so also; that is, the resistances should increase as the squares of the velocities.

Or if we consider the resistances as arising merely from the curvature of the imperceptible internal motions occasioned by the inequalities of the sides of the pipe, and as measured by the forces necessary for producing these curvilineal motions; then, because the curves will be the same whatever are the velocities, the deflecting forces will be as the squares of the velocities; but these deflecting forces are pressures, propagated from the parts urged or pressed by the external force, and are proportional to these external pressures by the principles of hydrostatics. Therefore the pressures or forces necessary for keeping up the velocities are as the squares of these velocities; and they are our only measures of the resistances which must be considered as following the same ratio. Whatever view therefore we take of the nature of these resistances, we are led to consider them as proportional to the squares of the velocities.

We may therefore express the resistances by the symbol $\frac{V^2}{m}$, m being some number to be discovered by experiment. Thus, in a particular pipe, the diminution of the motion or the resistance may be the 1000th part of the square of the velocity, and $R = \frac{V^2}{1000}$.

Now if g be the accelerating power of gravity on any particle, $\frac{g}{s}$ will be its accelerating power, by which it would urge it down the pipe whose slope is $\frac{1}{s}$. Therefore, by the principle of uniform motion, the equality of the accelerating force, and the resistance, we shall have $\frac{V^2}{m} = \frac{g}{s}$, and $V\sqrt{s} = \sqrt{mg}$; that is, the product of the velocity, and the reciprocal of the square root of the slope, or the quotient of the velocity divided by the slope, is a constant quantity $\sqrt{mg}$ for any given pipe; and the primary formula for all the uniform velocities of one pipe is $V = \frac{\sqrt{mg}}{\sqrt{s}}$.

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48 Experiments and reasoning of De Buat, respecting the resistances, &c.

Mr Buat therefore examined this by experiment, but found, that even with respect to a pipe or channel which was uniform throughout, this was not true. We could give at once the final formula which he found to express the velocity in every case whatever; but this would be too empirical. The chief steps of his very sagacious investigation are instructive. We shall therefore mention them briefly, at least as far as they tend to give us any collateral information; and let it always be noted, that the instruction which they convey is not abstract speculation, but experimental truths, which must ever remain as an addition to our stock of knowledge, although Mr Buat's deductions from them should prove false.

He found, in the first place, that in the same channel the product of V and $\sqrt{s}$ increased as $\sqrt{s}$ increased; that is, the velocities increased faster than the square roots of the slope, or the resistances did not increase as fast as the squares of the velocities. We beg leave to refer our readers to what we said on the resistance of pipes to the motion of fluids through them, in the article PNEUMATICS, when speaking of bellows. They will there see very valid reasons (we apprehend) for thinking that the resistances must increase more slowly than the squares of the velocities.

It being found, then, that $V\sqrt{s}$ is not equal to a constant quantity $\sqrt{mg}$, it becomes necessary to investigate some quantity depending on $\sqrt{s}$, or, as it is called, some function of $\sqrt{s}$, which shall render $\sqrt{mg}$ a constant quantity. Let X be this function of $\sqrt{s}$, so that we shall always have VX equal to the constant quantity $\sqrt{mg}$, or $\frac{\sqrt{mg}}{X}$ equal to the actual velocity V of a pipe or channel which is in train.

Mr Buat, after many trials and reflections, the chief of which will be mentioned by and by, found a value of X which corresponded with a vast variety of slopes and velocities, from motions almost imperceptible, in a bed nearly horizontal, to the greatest velocities which could be produced by gravity alone in a vertical pipe; and when he compared them together, he found a very discernible relation between the resistances and the magnitude of the section: that is, that in two channels which had the same slope, and the same propelling force, the velocity was greatest in the channel which had the greatest section relative to its border. This may reasonably be expected. The resistances arise from the mutual action of the water and this border. The water immediately contiguous to it is retarded, and this retards the next, and so on. It is to be expected, therefore, that if the border, and the velocity, and the slope, be the same, the diminution of this velocity will be so much the less as it is to be shared among a greater number of particles; that is, as the area of the section is greater in proportion to the extent of its border. The diminution of the general or medium velocity must be less in a cylindrical pipe than in a square one of the same area, because the border of its section is less.

It appears evident, that the resistance of each particle is in the direct proportion of the whole resistance, and the inverse proportion of the number of particles which receive equal shares of it. It is therefore directly as the border, and inversely as the section. Therefore in the expression $\frac{V^2}{m}$ which we have given for the resistance, the quantity m cannot be constant, except in the same channel; and in different channels it must vary along with the relation of the section to its border, because the resistances diminish in proportion as this relation increases.

Without attempting to discover this relation by theoretical examination of the particular motions of the various filaments, Mr Buat endeavoured to discover it by a comparison of experiments. But this required some manner of stating this proportion between the augmentation of the section and the augmentation of its border.

His statement is this: He reduces every section to a rectangular parallelogram of the same area, and having its base equal to the border unfolded into a straight line. The product of this base by the height of the rectangle will be equal to the area of the section. Therefore this height will be a representative of this variable ratio of the section to its border (We do not mean that there is any ratio between a surface and a line: but the ratio of section to section is different from that of border to border; and it is the ratio of these ratios which is thus expressed by the height of this rectangle). If S be the section, and B the border, $\frac{S}{B}$ is evidently a line equal to the height of this rectangle. Every section being in this manner reduced to a rectangle, the perpendicular height of it may be called the HYDRAULIC MEAN DEPTH of the section, and may be expressed by the symbol d. (Buat calls it the mean radius). If the channel be a cylindrical pipe, or an open half cylinder, it is evident that d is half the radius. If the section is a rectangle, whose width is w, and height h, the mean depth is $\frac{wh}{b+2h}$, &c. In general, if q represent the proportion of the breadth of a rectangular canal to its depth, that is, if q be made $= \frac{w}{h}$, we shall have $d = \frac{w}{q+2}$, or $d = \frac{qh}{q+2}$.

Now, since the resistances must augment as the proportion of the border to the section augments, m in the formulas $\frac{V^2}{m} = \frac{g}{s}$ and $V\sqrt{s} = \sqrt{mg}$, must follow the proportions of d, and the quantity $\sqrt{mg}$ must be proportional to $\sqrt{d}$ for different channels, and $\frac{\sqrt{mg}}{\sqrt{d}}$ should be a constant quantity in every case.

49 A specious objection

Our author was aware, however, of a very specious objection to the close dependence of the resistance on the extent of the border; and that it might be said that a double border did not occasion a double resistance, unless the pressure on all the parts was the same. For it may be naturally (and it is generally) supposed, that the resistance will be greater when the pressure is greater. The friction or resistance analogous to friction may therefore be greater on an inch of the bottom than on an inch of the sides; but Mr D'Alembert and many others have demonstrated, that the paths of the filaments will be the same whatever be the pressures.

Theory.

This might serve to justify our ingenious author; but he was determined to test every thing on experiment. He therefore made an experiment on the oscillation of water in syphons, which we have repeated in the following form, which is affected by the same circumstances, and is susceptible of much greater precision, and of more extensive and important application.

The two vessels ABCD, *a b c d* (fig. 9.) were connected by the syphon EFG*g f e*, which turned round in the short tubes E and *e*, without allowing any water to escape; the axes of these tubes being in one straight line. The vessels were about 10 inches deep, and the branches FG, *f g* of the syphon were about five feet long. The vessels were set on two tables of equal height, and (the hole *e* being stopped) the vessel ABCD, and the whole syphon, were filled with water, and water was poured into the vessel *a b c d* till it stood at a certain height LM. The syphon was then turned into a horizontal position, and the plug drawn out of *e*, and the time carefully noted which the water employed in rising to the level HK *k h* in both vessels. The whole apparatus was now inclined, so that the water run back into ABCD. The syphon was now put in a vertical position, and the experiment was repeated. —No sensible or regular difference was observed in the time. Yet in this experiment the pressure on the part G*g* of the syphon was more than six times greater than before. As it was thought that the friction on this small part (only six inches) was too small a portion of the whole obstruction, various additional obstructions were put into this part of the syphon, and it was even lengthened to nine feet; but still no remarkable difference was observed. It was even thought that the times were less when the syphon was vertical.

51 The resistance depends chiefly on the relation between the section and its border.

Thus Mr De Buat's opinion is completely justified; and he may be allowed to assert, that the resistance depends chiefly on the relation between the section and its border; and that $\frac{\sqrt{mg}}{\sqrt{d}}$ should be a constant quantity.

To ascertain this point was the object of the next series of experiments; to see whether this quantity was really constant, and, if not, to discover the law of its variation, and the physical circumstances which accompanied the variations, and may therefore be considered as their causes. A careful comparison of a very great number of experiments, made with the same slope, and with very different channels and velocities, showed that $\sqrt{mg}$ did not follow the proportion of $\sqrt{d}$, nor of any power of $\sqrt{d}$. This quantity $\sqrt{mg}$ increased by smaller degrees in proportion as $\sqrt{d}$ was greater. In very great beds $\sqrt{mg}$ was nearly proportional to $\sqrt{d}$, but in smaller channels, the velocities diminished much more than $\sqrt{d}$ did. Casting about for some way of accommodation, Mr Buat considered, that some approximation at least would be had by taking off from $\sqrt{d}$ some constant small quantity. This is evident: For such a diminution will have but a trifling effect when $\sqrt{d}$ is great, and its effect will increase rapidly when $\sqrt{d}$ is very small. He therefore tried various values for this subtraction, and compared the results with the former experiments; and he found, that if in every case $\sqrt{d}$ be diminished by one-tenth of an inch, the calculated discharges would agree very exactly with the experiment. Therefore, instead of $\sqrt{d}$, he makes use of $\sqrt{d} - 0,1$, and finds this quantity always proportional to $\sqrt{mg}$, or finds that $\frac{\sqrt{mg}}{\sqrt{d} - 0,1}$ is a constant quantity, or very nearly so. It varied from 297 to 287 in all sections from that of a very small pipe to that of a little canal. In the large sections of canals and rivers it diminished still more, but never was less than 256.

52 The result agreeable to our distinctest notions of the action of water and its bed,

This result is very agreeable to the most distinct notions that we can form of the mutual actions of the water and its bed. We see, that when the motion of water is obstructed by a solid body, which deflects the passing filaments, the disturbance does not extend to any considerable distance on the two sides of the body. In like manner, the small disturbances, and imperceptible curvilineal motions, which are occasioned by the infinitesimal inequalities of the channel, must extend to a very small distance indeed from the sides and bottom of the channel. We know, too, that the mutual adhesion or attraction of water for the solid bodies which are moistened by it, extends to a very small distance; which is probably the same, or nearly so, in all cases. Mr Buat observed, that a surface of 23 square inches, applied to the surface of stagnant water, lifted 1601 grains; another of $5\frac{1}{2}$ square inches lifted 365: this was at the rate of 65 grains per inch nearly, making a column of about one-sixth of an inch high. Now this effect is very much analogous to a real contraction of the capacity of the channel. The water may be conceived as nearly stagnant to this small distance from the border of the section. Or, to speak more accurately, the diminution of the progressive velocity occasioned by the friction and adhesion of the sides, decreases very rapidly as we recede from the sides, and ceases to be sensible at a very small distance.

53 And confirmed by experiment.

The writer of this article verified this by a very simple and instructive experiment. He was making experiments on the production of vortices, in the manner suggested by Sir Isaac Newton, by whirling a very accurate and smoothly polished cylinder in water; and he found that the rapid motion of the surrounding water was confined to an exceeding small distance from the cylinder, and it was not till after many revolutions that it was sensible even at the distance of half an inch. We may, by the way, suggest this as the best form of experiments for examining the resistances of pipes. The motion excited by the whirling cylinder in the stagnant water is equal and opposite to the motion lost by water passing along a surface equal to that of the cylinder with the same velocity. Be this as it may, we are justified in considering, with Mr Buat, the section of the stream as thus diminished by cutting off a narrow border all round the touching parts, and supposing that the motion and discharge is the same as if the root of the mean depth of the section were diminished by a small quantity, nearly constant. We see, too, that the effect of this must be insensible in great canals and rivers; so that, fortunately, its quantity is best ascertained by experiments made with small pipes. This is attended with another conveniency, in the opinion of Mr Buat, namely, that the effect

heory. effect of viſcidity is moſt ſenſible in great maſſes of water in ſlow motion, and is almoſt inſenſible in ſmall pipes, ſo as not to diſturb theſe experiments. We may therefore aſſume 297 as the general value of $\frac{\sqrt{mg}}{\sqrt{d}-0,1}$.

Since we have $\frac{\sqrt{mg}}{\sqrt{d}-0,1} = 297$, we have alſo $m = \frac{297^2}{g}\,\overline{\sqrt{d}-0,1}^2, = \frac{88209}{362}\,(\sqrt{d}-0,1)^2, = 243,7\,(\sqrt{d}-0,1)^2$. This we may expreſs by $n\,(\sqrt{d}-0,1)^2$. And thus, when we have expreſſed the effect of friction by $\frac{V^2}{m}$, the quantity m is variable, and its general value is $\frac{V^2}{n\,(\sqrt{d}-0,1)^2}$, in which n is an invariable abſtract number equal to 243,7, given by the nature of the reſiſtance which water ſuſtains from its bed, and which indicates its intenſity.

And, laſtly, ſince $m = n\,(\sqrt{d}-0,1)^2$, we have $\sqrt{mg} = \sqrt{ng}\,(\sqrt{d}-0,1)$, and the expreſſion of the velocity V, which water acquires and maintains along any channel whatever, now becomes $V = \frac{\sqrt{ng}\,(\sqrt{d}-0,1)}{X}$, or $\frac{297\,(\sqrt{d}-0,1)}{X}$, in which X is alſo a variable quantity, depending on the ſlope of the ſurface or channel, and expreſſing the accelerating force which, in the caſe of water in train, is in equilibrio with the reſiſtances expreſſed by the numerator of the fraction.

54 w of ac- eration eſtiga-

Having ſo happily ſucceeded in aſcertaining the variations of reſiſtance, let us accompany Mr Buat in his inveſtigation of the law of acceleration, expreſſed by the value of X.

Experience, in perfect agreement with any diſtinct opinions that we can form on this ſubject, had already ſhowed him, that the reſiſtances increaſed in a ſlower ratio than that of the ſquares of the velocities, or that the velocities increaſed ſlower than $\sqrt{s}$. Therefore, in the formula $V = \frac{\sqrt{ng}\,(\sqrt{d}-0,1)}{X}$, which, for one channel, we may expreſs thus, $V = \frac{A}{X}$, we muſt admit that X is ſenſibly equal to $\sqrt{s}$ when the ſlope is very ſmall or s very great. But, that we may accurately expreſs the velocity in proportion as the ſlope augments, we muſt have X greater than $\sqrt{s}$; and moreover, $\frac{\sqrt{s}}{X}$ muſt increaſe as $\sqrt{s}$ diminiſhes. Theſe conditions are neceſſary, that our values of V, deduced from the formula $V = \frac{A}{X}$, may agree with the experiment.

In order to comprehend every degree of ſlope, we muſt particularly attend to the motion through pipes, becauſe open canals will not furniſh us with inſtances of exact TRAINS with great ſlopes and velocities. We can make pipes vertical. In this caſe $\frac{1}{s}$ is $\frac{1}{1}$, and the velocity is the greateſt poſſible for a train by the action of gravity: But we can give greater velocities than this by increaſing the head of water beyond what produces the velocity of the train. Theory.

Let AB (fig. 10.) be a vertical tube, and let CA be the head competent to the velocity in the tube, which we ſuppoſe to be in train. The ſlope is 1, and the full weight of the column in motion is the preciſe meaſure of the reſiſtance. The value of $\frac{1}{s}$, conſidered as a ſlope, is now a maximum; but, conſidered as expreſſing the proportion of the weight of the column in motion to the weight which is in equilibrio with the reſiſtance, it may not be a maximum; it may ſurpaſs unity, and s may be leſs than 1. For if the veſſel be filled to E, the head of water is increaſed, and will produce a greater velocity, and this will produce a greater reſiſtance. The velocity being now greater, the head EF which imparts it muſt be greater than CA. But it will not be equal to EA, becauſe the uniform velocities *are found* to increaſe faſter than the ſquare roots of the preſſures. This is the general fact. Therefore F is above A, and the weight of the column FB, now employed to overcome the reſiſtance, is greater than the weight of the column AB in motion. In ſuch caſes, therefore, $\frac{1}{s}$, greater than unity, is a ſort of fictitious ſlope, and only repreſents the proportion of the reſiſtance to the weight of the moving column. This proportion may ſurpaſs unity.

But it cannot be infinite: For ſuppoſing the head of water infinite; if this produce a finite velocity, and we deduct from the whole height the height correſponding to this finite velocity, there will remain an infinite head, the meaſure of an infinite reſiſtance produced by a finite velocity. This does not accord with the obſerved law of the velocities, where the reſiſtances actually do not increaſe as faſt as the ſquares of the velocities. Therefore an infinite head would have produced an infinite velocity, in oppoſition to the reſiſtances: taking off the head of the tube, competent to this velocity, at the entry of the tube, which head would alſo be infinite, the remainder would in all probability be finite, balancing a finite reſiſtance.

Therefore the value of s may remain finite, although the velocity be infinite; and this is agreeable to all our cleareſt notions of the reſiſtances.

Adopting this principle, we muſt find a value of X which will anſwer all theſe conditions. 2. It muſt be ſenſibly proportional to $\sqrt{s}$, while s is great. It muſt always be leſs than $\sqrt{s}$. 3. It muſt deviate from the proportion of $\sqrt{s}$, ſo much the more as $\sqrt{s}$ is ſmaller. 4. It muſt not vaniſh when the velocity is infinite. 5. It muſt agree with a range of experiments with every variety of channel and of ſlope.

We ſhall underſtand the nature of this quantity X better by repreſenting by lines the quantities concerned in forming it.

If the velocities were exactly as the ſquare roots of the ſlopes, the equilateral hyperbola NKS (fig. 10. n° 2) between its aſſymptotes MA, AB, would repreſent the equation $V = \frac{A}{\sqrt{s}}$. The values of $\sqrt{s}$ would be repreſented by the abſciſſæ, and the velocities by the ordinates, and $V\sqrt{s} = A$ would be the power of the hyperbola. But ſince theſe velocities are not ſenſibly

Theory. equal to $\frac{A}{\sqrt{s}}$ except when $\sqrt{s}$ is very great, and deviate the more from this quantity as $\sqrt{s}$ is smaller; we may represent the velocities by the ordinates of another curve PGT, which approaches very near to the hyperbola, at a great distance from A along AB; but separates from it when the abscissæ are smaller: so that if AQ represents that value of $\sqrt{s}$ (which we have seen may become less than unity), which corresponds to an infinite velocity, the line QO may be the assymptote of the new curve. Its ordinates are equal to $\frac{A}{X}$ while those of the hyperbola are equal to $\frac{A}{\sqrt{s}}$. Therefore the ratio of these ordinates or $\frac{\sqrt{s}}{X}$ should be such that it shall be so much nearer to unity as $\sqrt{s}$ is greater, and shall surpass it so much the more as $\sqrt{s}$ is smaller.

To express X therefore as some function of $\sqrt{s}$ so as to answer these conditions, we see in general that X must be less than $\sqrt{s}$. And it must not be equal to any power of $\sqrt{s}$ whose index is less than unity, because then $\frac{\sqrt{s}}{X}$ would differ so much the more from unity as $\sqrt{s}$ is greater. Nor must it be any multiple of $\sqrt{s}$ such as $q\sqrt{s}$, for the same reason. If we make $X=\sqrt{s}-K$, K being a constant quantity, we may answer the first condition pretty well. But K must be very small, that X may not become equal to nothing, except in some exceedingly small value of $\sqrt{s}$. Now the experiments will not admit of this, because the ratio $\frac{\sqrt{s}}{\sqrt{s}-K}$ does not increase sufficiently to correspond with the velocities which we observe in certain slopes, unless we make K greater than unity, which again is inconsistent with other experiments. We learn from such canvassing that it will not do to make K a constant quantity. If we should make it any fractionary power of $\sqrt{s}$, it would make $X=0$, that is, nothing, when $s=1$, which is also contrary to experience. It would seem, therefore, that nothing will answer for K but some power of $\sqrt{s}$ which has a variable index. The logarithm of $\sqrt{s}$ has this property. We may therefore try to make $X=\sqrt{s}-\log.\sqrt{s}$. Accordingly if we try the equation $V=\frac{A}{\sqrt{s}-\text{hyp. log.}\sqrt{s}}$, we shall find a very great agreement with the experiments till the declivity becomes considerable, or about $\frac{1}{10}$, which is much greater than any river. But it will not agree with the velocities observed in some mill courses, and in pipes of a still greater declivity, and gives a velocity that is too small; and in vertical pipes the velocity is not above one half of the true one. We shall get rid of most of these incongruities if we make K consist of the hyperbolic logarithm of $\sqrt{s}$ augmented by a small constant quantity, and by trying various values for this constant quantity, and comparing the results with experiment, we may hit on one sufficiently exact for all practical purposes.

Mr De Buat, after repeated trials, found that he would have a very great conformity with experiment by making $K=\log.\sqrt{s+1,6}$, and that the velocities exhibited in his experiments would be very well represented by the formula $V=\frac{297(\sqrt{d}-0,1)}{\sqrt{s}-L\sqrt{s+1,6}}$.

55 Mutual adhesion of the particles of water.

There is a circumstance which our author seems to have overlooked on this occasion, and which is undoubtedly of great effect in these motions, viz. the mutual adhesion of the particles of water. This causes the water which is descending (in a vertical pipe for example) to drag more water after it, and thus greatly increases its velocity. We have seen an experiment in which the water issued from the bottom of a reservoir through a long vertical pipe having a very gentle taper. It was 15 feet long, one inch diameter at the upper end, and two inches at the lower. The depth of the water in the reservoir was exactly one foot; in a minute there were discharged $2\frac{9}{10}$ cubic feet of water. It must therefore have issued through the hole in the bottom of the reservoir with the velocity of 8,85 feet per second. And yet we know that this head of water could not make it pass through the hole with a velocity greater than 6,56 feet per second. This increase must therefore have arisen from the cause we have mentioned, and is a proof of the great intensity of this force. We doubt not but that the discharge might have been much more increased by proper contrivances; and we know many instances in water pipes where this effect is produced in a very great degree.

56 An actual case

The following case is very distinct: Water is brought into the town of Dunbar in the county of East Lothian from a spring at the distance of about 3200 yards. It is conveyed along the first 1100 yards in a pipe of two inches diameter, and the declivity is 12 feet nine inches; from thence the water flows in a pipe of $1\frac{1}{2}$ diameter, with a declivity of 44 feet 3 inches, making in all 57 feet. When the work was carried as far as the two-inch pipe reached, the discharge was found to be 27 Scotch pints, of $103\frac{1}{2}$ cubic inches each in a minute. When it was brought into the town, the discharge was 28. Here it is plain that the descent along the second stretch of the pipe could derive no impulsion from the first. This was only able to supply 27 pints, and to *deliver* it into a pipe of equal bore. It was not equivalent to the forcing it into a smaller pipe, and almost doubling its velocity. It must therefore have been *dragged* into this smaller pipe by the weight of what was descending along it, and this water was exerting a force equivalent to a head of 16 inches, increasing the velocity from 14 to about 28.

57 Proves that the smallest declivity will produce a current.

It must be observed, that if this formula be just, there can be no declivity so small that a current of water will not take place in it. And accordingly none has been observed in the surface of a stream when this did not happen. But it also should happen with respect to any declivity of bottom. Yet we know that water will hang on the sloping surface of a board without proceeding further. The cause of this seems to be the adhesion of the water combined with its viscidity. The viscidity of a fluid presents a certain force which must be overcome before any current can take place.

A series of important experiments were made by our author in order to ascertain the relation between the velocity at the surface of any stream and that at the

Theory.

the bottom. These are curious and valuable on many accounts. One circumstance deserves our notice here, viz. that *the difference between the superficial and bottom velocities of any stream are proportional to the square roots of the superficial velocities.* From what has been already said on the gradual diminution of the velocities among the adjoining filaments, we must conclude that the same rule holds good with respect to the velocity of separation of two filaments immediately adjoining. Hence we learn that this velocity of separation is in all cases indefinitely small, and that we may, without danger of any sensible error, suppose it a constant quantity in all cases.

58 Part of the clerating force employed overcoming the viscidity.

We think, with our ingenious author, that on a review of these circumstances, there is a constant or invariable portion of the accelerating force employed in overcoming this viscidity and producing this mutual separation of the adjoining filaments. We may express this part of the accelerating force by a part $\frac{1}{S}$ of that slope which constitutes the whole of it. If it were not employed in overcoming this resistance, it would produce a velocity which (on account of this resistance) is not produced, or is lost. This would be $\frac{A}{\sqrt{S}-L\sqrt{S}}$. This must therefore be taken from the velocity exhibited by our general formula. When thus corrected, it would become $V=(\sqrt{d}-0,1)\left(\frac{\sqrt{ng}}{\sqrt{s}-L\sqrt{s+1,6}}-\frac{\sqrt{ng}}{\sqrt{S}-L\sqrt{S}}\right)$. But as the term $\frac{\sqrt{ng}}{\sqrt{S}-L\sqrt{S}}$ is compounded only of constant quantities, we may express it by a single number. This has been collected from a scrupulous attention to the experiments (especially in canals and great bodies of water moving with very small velocities; in which case the effects of viscidity must become more remarkable), and it appears that it may be valued at $\sqrt{\text{inch}\ 0,09}$, or 0,3 inches very nearly.

From the whole of the foregoing considerations, drawn from nature, supported by such reasoning as our most distinct notions of the internal motions will admit, and authorised by a very extensive comparison with experiment, we are now in a condition to conclude a complete formula, expressive of the uniform motion of water, and involving every circumstance which appears to have any share in the operation.

59 Formula expressing the uniform motion of water.

Therefore let

V represent the mean velocity, in inches per second, of any current of water, running uniformly, or which is IN TRAIN, in a pipe or open channel, whose section, figure, and slope, are constant, but its length indefinite.

d the hydraulic mean depth, that is, the quotient arising from dividing the section of the channel, in square inches, by its border, expressed in linear inches.

s The slope of the pipe, or of the surface of the current. It is the denominator of the fraction expressing this slope, the numerator being always unity; and is had by dividing the expanded length of the pipe or channel by the difference of height of its two extremities.

g The velocity (in inches per second) which a heavy body acquires by falling during one second.

n An abstract constant number, determined by experiment to be 243,7.

L the hyperbolic logarithm of the quantity to which it is prefixed, and is had by multiplying the common logarithm of that quantity by 2,3026.

We shall have in every instance

$$V=\frac{\sqrt{ng}\,(\sqrt{d}-0,1)}{\sqrt{s}-L.\sqrt{s+1,6}}-0,3(\sqrt{d}-0,1)$$

This, in numbers, and English measure, is

$$V=\frac{327\,(\sqrt{d}-0,1)}{\sqrt{s}-L\sqrt{s+1,6}}-0,3\,(\sqrt{d}-0,1)$$

And in French measure

$$V=\frac{297\,(\sqrt{d}-0,1)}{\sqrt{s}-L\sqrt{s+1,6}}-0,3(\sqrt{d}-0,1)$$

The following table contains the real experiments from which this formula was deduced, and the comparison of the real velocities with the velocities computed by the formula. It consists of two principal sets of experiments. The first are those made on the motion of water in pipes. The second are experiments made on open canals and rivers. In the first set, column 1st contains the number of the experiment; 2d, the length of the tube; 3d, the height of the reservoir; 4th, the values of S, deduced from column second and third; 5th gives the observed velocities; and 6th the velocities calculated by the formula.

In the second set, column 2d gives the area of the section of the channel; 3d, the border of the canal or circumference of the section, deducting the horizontal width, which sustains no friction; 4th, the square root $\sqrt{d}$ of the hydraulic mean depth; 5th, the denominator S of the slope; 6th, the observed mean velocities; and 7th, the mean velocities by the formula. In the last ten experiments on large canals and a natural river the 6th column gives the observed velocities at the surface.

60 Table containing the experiments from which the formula is deduced.

Set I. *Experiments on Pipes.*

Experiments by Chevalier De Buat.

N°	Length of Pipe.	Height of Reservoir.	Values of s.	Velocities observed.	Velocities calculated.
			Vertical Tube ¾ of a Line in Diameter and $\sqrt{d}=0,117851$.		
	Inch.	Inch.	Inch.	Inch.	Inch.
1	12	16,166	0,75636	11,704	12,026
2	12	13,125	0,9307	9,753	10,576
			Vertical Pipe 1½ Lines Diameter, and $\sqrt{d}=0,176776$ *Inch.*		
3	34,166	42,166	0,9062	45,468	46,210
4	Do.	38,333	0,9951	43,159	43,721
5	Do.	36,666	1,0396	42,385	42,612
6	Do.	35,333	1,0781	41,614	41,714

The same Pipe horizontal.

N	Length of Pipe	Height of Reservoir	Values of s.	Velocities observed.	Velocities calculated.
	Inch.	Inch.	Inch.	Inch.	Inch.
7	34,166	14,583	2,5838	26,202	25,523
8	Do.	9,292	4,0367	21,064	19,882
9	Do.	5,292	7,036	14,642	14,447
10	Do.	2,083	17,6378	7,320	2,351

Vertical Pipe 2 Lines Diameter, and $\sqrt{d}=0,204124$.

11	36,25	51,250	0,85451	64,373	64,945
12	Do.	45,250	0,96338	59,605	60,428
13	Do.	41,916	1,03808	57,220	57,838
14	Do.	38,750	1,12047	54,186	55,321

Same Pipe with a slope of $\frac{1}{1,3024}$.

15	36,25	33,500	1,29174	51,151	50,983

Same Pipe horizontal.

16	36,25	15,292	2,7901	33,378	33,167
17	Do.	8,875	4,76076	25,430	24,553
18	Do.	5,292	7,89587	19,940	18,313
19	Do.	2,042	20,01637	10,620	10,492

Vertical Pipe $2\frac{1}{8}$ *Lines Diameter, and* $\sqrt{d}=0,245798$.

20	36,25	53,250	0,95235	85,769	85,201
21	Do	50,250	1,00642	82,471	82,461
22	Do.	48,333	1,0444	81,646 }	80,698
23	Do.	48,333	1,0444	79,948 }	
24	Do.	47,916	1,0529	81,027	80,318
25	Do.	44,750	1,1241	76,079	77,318
26	Do.	41,250	1,2157	73,811	73,904

The same Pipe with the slope $\frac{1}{1,3024}$.

27	36,25	37,5	1,3323	70,822	70,138

The same Pipe Horizontal.

28	36,25	20,166	2,4303	51,956	50,140
29	Do.	9,083	5,2686	33,577	32,442
30	Do.	7,361	6,4504	28,658	28,801
31	Do.	5,	9,3573	23,401	23,195
32	Do.	4,916	9,5097	22,989	22,974
33	Do.	4,833	9,6652	22,679	22,754
34	Do.	3,708	12,4624	19,587	19,550
35	Do.	2,713	16,3135	16,631	16,324
36	Do.	2,083	21,6639	14,295	14,003
37	Do.	1,625	27,5102	12,680	12,115
38	Do.	0,833	52,3427	7,577	8,215

Pipes sensibly Horizontal $\sqrt{d}=0,5$, *or 1 Inch Diameter.*

39	117	36	5,6503	84,945	85,524
40	117	26,666	7,48	71,301	72,617
41	138,5	20,950	10,3215	58,808	60,034
42	117	18	10,7880	58,310	58,472

N°	Length of Pipe	Height of Reservoir.	Values of s.	Velocities observed	Velocities calculated.
	Inch.	Inch.	Inch.	Inch.	Inch.
43	138,5	6	33,1962	29,341	29,663
44	737	23,7	33,6658	28,669	29,412
45	Do.	14,6	54,2634	21,856	22,056
46	Do.	13,7	57,7772	20,970.	21,240
47	Do.	12,32	64,1573	19,991	19,950
48	Do.	8,96 }	87,8679	16,6257 }	16,543
49	Do.	8,96 }		16,2847 }	
50	Do.	7,780	101,0309	15,112	15,232
51	Do.	5,93	132,1617	13,315	13,005
52	Do.	4,2 }	186,0037	10,671 }	10,656
53	Do.	4,2 }		10,441 }	
54	138,5	0,7	257,8863	8,689	8,824
55	737	0,5	1540,75	3,623	3,218
56	737	0,15	5113,42	1,589	1,647

Experiments by the Abbé BOSSUT.

Horizontal Pipe 1 Inch Diameter $\sqrt{d}=0,5$.

57	600	12	54,5966	22,282	21,975
58	600	4	161,312	12,223	11,756

Horizontal Pipe $1\frac{3}{8}$ *Inch Diameter* $\sqrt{d}=0,5774$.

59	360	24	19,0781	48,534	49,515
60	720	24	33,6166	34,473	35,130
61	360	12	37,0828	33,160	33,106
62	1080	24	48,3542	28,075	28,211
63	1440	24	63,1806	24,004	24,023
64	720	12	66,3020	23,360	23,345
65	1800	24	78,0532	21,032	21,182
66	2160	24	92,9474	18,896	19,096
67	1080	12	95,8756	18,943	18,749
68	1440	12	125,6007	16,128	15,991
69	1800	12	155,4015	14,066	14,119
70	2160	12	185,2487	12,560	12,750

Horizontal Pipe 2,01 Inch Diameter $\sqrt{d}=0,708946$.

71	360	24	21,4709	58,903	58,803
72	720	24	35,8082	43,	43,136
73	360	12	41,2759	40,322	39,587
74	1080	24	50,4119	35,765	35,096
75	1440	24	65,1448	30,896	30,096
76	720	12	70,1426	29,215	28,796
77	1800	24	79,8487	27,470	26,639
78	2160	24	94,7901	27,731	24,079
79	1080	12	99,4979	23,806	23,400
80	1440	12	129,0727	20,707	20,076
81	1800	12	158,7512	18,304	17,788
82	2160	12	188,5179	16,377	16,097

MR COUPLET'S *Experiments at Versailles.*

Pipe 5 Inches Diameter $\sqrt{d}=1,11803$.

83	84240	25	3378,26	5,323	5,287
84	Do.	24	3518,98	5,213	5,168
85	Do.	21,083	4005,66	4,806	4,807
86	Do.	16,750	5041,61	4,127	4,225
87	Do.	11,333	7450,42	3,154	3,388
88	Do.	5,583	15119,96	2,011	2,254

Pipe 18 Inches Diameter $\sqrt{d}=2,12132$.

89	43200	145,083	304,973	39,159	40,510

SET-

Set II. *Experiments with a Wooden Canal.*

N°	Section of Canal.	Border of Canal.	Values of $\sqrt{d}$.	Values of s.	Mean Velocity observed	Mean Veloc. calc.
			Trapezium Canal.			
	Inch.	Inch.	Inch.	Inch.	Inch.	Inch.
0	18,84	13,06	1,20107	212	27,51	27,19
91	50,60	29,50	1,3096	212	28,92	29,88
92	83,43	26	1,7913	412	27,14	28,55
93	27,20	15,31	1,3329	427	18,28	20,39
94	39,36	18,13	1,4734	427	20,30	22,71
95	50,44	20,37	1,5736	427	22,37	24,37
96	56,43	21,50	1,6201	427	23,54	25,14
97	98,74	28,25	1,8696	432	28,29	29,06
98	100,74	28,53	1,8791	432	28,52	29,23
99	119,58	31,06	1,9622	432	30,16	30,60
100	126,20	31,91	1,9887	432	31,58	31,03
101	130,71	32,47	2,0064	432	31,89	31,32
102	135,32	33,03	2,0241	432	32,52	31,61
103	20,83	13,62	1,2367	1728	8,94	8,58
104	34,37	17,	1,4219	1728	9,71	9,98
105	36,77	17,56	1,4471	1728	11,45	10,17
106	42,01	18,69	1,4992	1728	12,34	10,53
			Rectangular Canal.			
107	34,50	21,25	1,27418	458	20,24	18,66
108	86,25	27,25	1,77908	458	28,29	26,69
109	34,50	21,25	1,27418	929	13,56	12,53
110	35,22	21,33	1,28499	1412	9,20	10,01
111	51,75	23,25	1,49191	1412	12,10	11,76
112	76,19	26,08	1,70921	1412	14,17	13,59
113	105,78	29,17	1,90427	1412	15,55	15,24
114	69,	25,25	1,65308	9288	4,59	4,56
115	155,25	35,25	2,09868	9288	5,70	5,86

Set III. *Experiments on the Canal of* Jard.

N	Section of Canal.	Border of Canal.	Values of $\sqrt{d}$.	Values of s.	Velocity obs. at Surface.	Velocity calculated.
116	16252	402	6,3583	8919	17,42	18,77
117	11905	366	5,70320	11520	12,17	14,52
118	10475	360	5,3942	15360	15,74	11,61
119	7858	340	4,8074	21827	9,61	8,38
120	7376	337	4,6784	27648	7,79	7,07
121	6125	324	4,3475	27648	7,27	6,55

Experiments on the River Haine.

N°	Section of River	Border of River	Values of $\sqrt{d}$.	Values of s.	Velocity at Surface	Veloc. (mean) calcul.
122	31498	569	7,43974	6048	35,11	27,62
123	38838	601	8,03879	6413	31,77	28,76
124	30905	568	7,37632	32951	13,61	10,08
125	39639	604	8,10108	35723	15,96	10,53

This comparison must be acknowledged to be most satisfactory, and shows the great penetration and address of the author, in so successfully sifting and appreciating the share which each co-operating circumstance has had in producing the very intricate and complicated effect. It adds some weight to the principles on which he has proceeded in this analysis of the mechanism of hydraulic motion, and must give us great confidence in a theory so fairly established on a very copious induction. The author offers it only as a rational and well-founded probability. To this character it is certainly intitled; for the suppositions made in it are agreeable to the most distinct notions we can form of these internal motions. And it must always be remembered that the investigation of the formula, although it be rendered somewhat more perspicuous by thus having recourse to those notions, has no dependence on the truth of the principles. For it is, in fact, nothing but a classification of experiments, which are grouped together by some one circumstance of slope, velocity, form of section, &c. in order to discover the law of the changes which are induced by a variation of the circumstances which do not resemble. The procedure was precisely similar to that of the astronomer when he deduces the elements of an orbit from a multitude of observations. This was the task of Mr de Buat; and he candidly and modestly informs us, that the finding out analytical forms of expression which would exhibit these changes was the work of Mr Benezech de St Honoré, a young officer of engineers, and his colleague in the experimental course. It does honour to his skill and address; and we think the whole both a pretty and instructive specimen of the method of discovering the laws of nature in the midst of complicated phenomena. Daniel Bernoulli first gave the rules of this method, and they have been greatly improved by Lambert, Condorcet, and De la Grange. Mr Coulomb has given some excellent examples of their application to the discovery of the laws of friction, of magnetical and electrical attraction, &c. But this present work is the most perspicuous and familiar of them all. It is the empirical method of generalising natural phenomena, and of deducing general rules, of which we can give no other demonstration but that they are faithful representations of matters of fact. We hope that others, encouraged by the success of Mr de Buat, will follow this example, where public utility is preferred to a display of mathematical knowledge.

61 The theory a well-founded probability, and

Although the author may not have hit upon the precise *modus operandi*, we agree with him in thinking that nature seems to act in a way not unlike what is here supposed. At any rate, the range of experiments is so extensive, and so multifarious, that few cases can occur which are not included among them. The experiments will always retain their value (as we presume that they are faithfully narrated), whatever may become of the theory; and we are confident that the formula will give an answer to any question to which it may be applicable infinitely preferable to the vague guess of the most sagacious and experienced engineer.

62 The experiments light, valuable.

We must however observe, that as the experiments on pipes were all made with scrupulous care in the contrivance and execution of the apparatus, excepting only those of Mr Couplet on the main pipes at Versailles, we

we may [illegible] that the formula gives the greatest velocities which can be expected. In ordinary works, where joints are rough or leaky, where drops of solder [illegible] in the [illegible], where cocks intervene with deli[illegible], where pipes have awkward bendings, [illegible] elements, and where they may con[illegible], we should reckon on a smaller velocity than what results from our calculation; and we presume that an undertaker may with confidence promise $\frac{4}{5}$ of the quantity without any risk of disappointing his employer. We imagine that the actual performance of canals will be much nearer to the formula.

We have made inquiry after works of this kind executed in Britain, that we might compare them with the formula. But all our canals are locked and without motion; and we have only learned by an accidental information from Mr Watt, that a canal in his neighbourhood, which is 18 feet wide at the surface, and seven feet at the bottom, and four feet deep, and has a slope of one inch in a quarter of a mile, runs with the velocity of 17 inches per second at the surface, 10 at the bottom, and 14 in the middle. If we compute the motion of this canal by our formula, we shall find the mean velocity to be $13\frac{1}{3}$.

No river in the world has had its motions so much scrutinised as the Po about the end of the last century. It had been a subject of 100 years continual litigation between the inhabitants of the Bolognese and the Ferrarese, whether the waters of the Rheno should be thrown into the Tronco de Venezia or Po Grande. This occasioned very numerous measures to be taken of its sections and declivity, and the quantities of water which it contained in its different states of fullness. But, unfortunately, the long established methods of measuring waters, which were in force in Lombardy, made no account of the velocity, and not all the intreaties of Castelli, Grandi, and other moderns, could prevail on the visitors in this process to deviate from the established methods. We have therefore no minute accounts of its velocity, though there are many rough estimates to be met with in that valuable collection published at Florence in 1723, of the writings on the motion of rivers. From them we have extracted the *only precise observations* which are to be found in the whole work.

64 Observations on the velocity of the Po

The Po Grande receives no river from Stellata to the sea, and its slope in that interval is found most surprisingly uniform, namely six inches in the mile (reduced to English measure). The breadth in its great freshes is 759 feet at Lago Scuro, with a very uniform depth of 31 feet. In its lowest state (in which it is called *Po Magra*), its breadth is not less than 700, and its depth about $10\frac{1}{2}$.

The Rheno has a uniform declivity from the Ponte Emilio to Vigarano of 15 inches per mile. Its breadth in its greatest freshes is 189 feet, and its depth 9.

Signor Corrade in his report says, that in the state of the great freshes the velocity of the Rheno is most exactly $\frac{4}{5}$ of that of the Po.

Grandi says that a great fresh in the Rheno employs 12 hours (by many observations of his own) to come from Ponte Emilio to Vigarano, which is 30 miles. This is a velocity of 44 inches per second. And, by Corrade's proportion, the velocity of the Po Grande must be 55 inches per second.

Montanari's observation gives the Po Magra a velocity of 31 inches per second.

Let us compare these velocities with the velocities calculated by Buat's formula.

The hydraulic mean depths d and D of the Rheno and Po in the great freshes deduced from the above measures, are 9[illegible],6 and 344 inches; and their slopes s and S are $\frac{1}{4512}$ and $\frac{1}{10560}$. This will give

$$\frac{307\,(\sqrt{D}-0,1)}{\sqrt{S}-L\sqrt{S}+1,6}-0,3(\sqrt{D}-0,1)=52,176 \text{ inches}$$

and $$\frac{307\,(\sqrt{d}-0,1)}{\sqrt{s}-L\sqrt{s}+1,6}-0,3\,(\sqrt{d}-0,1)=46,727$$

inches.

These results differ very little from the velocities above mentioned. And if the velocity corresponding to a depth of 31 feet be deduced from that observed by Montanari in the Po Magra 10 feet deep, on the supposition that they are in the proportion of $\sqrt{d}$, it will be found to be about $53\frac{1}{2}$ inches per second.

65 Highly to the credit of the theory.

This comparison is therefore highly to the credit of the theory, and would have been very agreeable to M. de Buat, had he known it, as we hope it is to our readers.

We have collected many accounts of water pipes, and made the comparisons, and we flatter ourselves that these have enabled us to improve the theory. They shall appear in their proper place; and we may just observe here, that the two-inch pipe, which we formerly spoke of as conveying the water to Dunbar, should have yielded only $25\frac{1}{2}$ Scotch pints per minute by the formula, instead of 27; a small error.

We have, therefore, no hesitation in saying that this single formula of the uniform motion of water is one of the most valuable presents which natural science and the arts have received during the course of this century.

We hoped to have made this fortunate investigation of the chevalier de Buat still more acceptable to our readers by another table, which should contain the values of $\frac{307}{\sqrt{s}-L\sqrt{s}+1,6}$ ready calculated for every declivity that can occur in water pipes, canals, or rivers. Aided by this, which supersedes the only difficult part of the computation, a person could calculate the velocity for any proposed case in less than two minutes. But we have not been able to get it ready for its appearance in this article, but we shall not fail to give it when we resume the subject in the article *Water-Works*; and we hope even to give its results on a scale which may be carried in the pocket, and will enable the unlearned practitioner to solve any question with accuracy in half a minute.

We have now established in some measure a THEORY OF HYDRAULICS, by exhibiting a general theorem which expresses the relation of the chief circumstances of all such motions as have attained a state of permanency, in so far as this depends on the magnitude, form, and slope of the channel. This permanency we have expressed by the term TRAIN, saying that the stream is *in train*.

We proceed to consider the subordinate circumstances contained in this theorem; such as, 1*st*, The forms which nature or art may give to the bed of a running stream, and the manner of expressing this form in our theorem. 2*d*, The gradations of the velocity, by which

it decreases in the different filaments, from the axis or most rapid filament to the border; and the connection of this with the mean velocity, which is expressed by our formula. 3d, Having acquired some distinct notions of this, we shall be able to see the manner in which undisturbed nature works in forming the beds of our rivers, the forms which she affects, and which we must imitate in all their local modifications, if we would secure that permanency which is the evident aim of all her operations. We shall here learn the mutual action of the current and its bed, and the circumstances which ensure the stability of both. These we may call the *regimen* or the *conservation* of the stream, and may say that it is *in regimen*, or *in conservation*. This has a relation, not to the dimensions and the slope alone, or to the accelerating force and the resistance arising from mere inertia; it respects immediately the tenacity of the bed, and is different from *the train*.

4th, These pieces of information will explain the deviation of rivers from the rectilineal course; the resistance occasioned by these deviations; and the circumstances on which the regimen of a winding stream depends.

§ 1. *Of the Forms of the Channel.*

The numerator of the fraction which expresses the velocity of a river in train has $\sqrt{d}$ for one of its factors. That form, therefore, is most favourable to the motion which gives the greatest value to what we have called the hydraulic mean depth d. This is the prerogative of the semicircle, and here d is equal to half the radius; and all other figures of the same area are the more favourable, as they approach nearer to a semicircle. This is the form, therefore, of all conduit pipes, and should be taken for aqueducts which are built of masonry. Ease and accuracy of execution, however, have made engineers prefer a rectangular form; but neither of these will do for a channel formed out of the ground. We shall soon see that the semicircle is incompatible with a regimen; and, if we proceed through the regular polygons, we shall find that the half hexagon is the only one which has any pretensions to a regimen; yet experience shows us, that even its banks are too steep for almost any soil. A dry earthen bank, not bound together by grass roots, will hardly stand with a slope of 45 degrees; and a canal which conveys running waters will not stand with this slope. Banks whose base is to their height as 4 to 3 will stand very well in moist soils, and this is a slope very usually given. This form is even affected in the spontaneous operations of nature, in the channels which she digs for the rills and rivulets in the higher and steeper grounds.

This form has some mathematical and mechanical properties which intitle it to some further notice. Let ABEC (fig. 11.) be such a trapezium, and AHGC the rectangle of equal width and depth. Bisect HB and EG by the verticals FD and KI, and draw the verticals bB, eE. Because AH : HB = 3 : 4, we have AB = 5, and BD = 2, and FD 3, and BD + DF = BA. From these premisses it follows, that the trapezium ABEC has the same area with the rectangle; for HB being bisected in D, the triangles ACF, BCD are equal. Also the border ABEC, which is touched by the passing stream, is equal to FDIK. Therefore the mean depth, which is the quotient of the area divided by the border, is the same in both; and this is the case, whatever is the width BE at the bottom, or even though there be no rectangle such as bBEe interposed between the slant sides.

Theory.

Of all rectangles, that whose breadth is twice the height, or which is half of a square, gives the greatest mean depth. If, therefore, FK be double of FD, the trapezium ABEC, which has the same area, will have the largest mean depth of any such trapezium, and will be the best form of a channel for conveying running waters. In this case, we have AC = 10, AH = 3, and BE = 2. Or we may say that the best form is a trapezium, whose bottom width is $\frac{2}{3}$ of the depth, and whose extreme width is $\frac{10}{3}$. This form approaches very near to that which the torrents in the hills naturally dig for themselves in uniform ground, where their action is not checked by stones which they lay bare, or which they deposit in their course. This shows us, and it will be fully confirmed by and by, that the channel of a river is not a fortuitous thing, but has a relation to the consistency of the soil and velocity of the stream.

70 Best form for a channel.

A rectangle, whose breadth is $\frac{4}{3}$ of the depth of water, will therefore have the same mean depth with a triangle whose surface width is $\frac{8}{3}$ of its vertical depth; for this is the dimensions when the rectangle bBEe is taken away.

Let A be the area of the section of any channel, w its width (when rectangular), and h its depth of water. Then what we have called its mean depth, or d, will be $\frac{A}{w+2h} = \frac{wh}{w+2h}$. Or if q expresses the ratio of the width to the depth of a rectangular bed; that is, if $q = \frac{w}{h}$, we have a very simple and ready expression for the mean depth, either from the width or depth. For $d = \frac{w}{q+2}$, or $d = \frac{qh}{q+2}$.

Therefore, if the depth were infinite, and the width finite, we should have $d = \frac{w}{2}$; or if the width be infinite, and the depth finite, we have $d = h$. And these are the limits of the values of d; and therefore, in rivers whose width is always great in comparison of the depth, we may without much error take their real depth for their hydraulic mean depth. Hence we derive a rule of easy recollection, and which will at all times give us a very near estimate of the velocity and expence of a running stream, *viz.* that *the velocities are nearly as the square roots of the depths*. We find this confirmed by many experiments of Michelotti.

71 Estimate of the velocity of a running stream.

Also, when we are allowed to suppose this ratio of the velocities and depths, that is, in a rectangular canal of great breadth and small depth, we shall have the quantities discharged nearly in the proportion of the cubes of the velocities. For the quantity discharged d is as the velocity and area jointly, that is, as the height and velocity jointly, because when the width is the same the area is as the height. Therefore, we have $d \doteqdot hv$.—But, by the above remark, $h \doteqdot v^2$. Therefore, $d \doteqdot v^3$; and this is confirmed by the experiments of Bossut, vol. ii. 236. Also, because d is as vh, when w is constant, and by the above remark (allowable when w is very great in proportion to h) v is as $\sqrt{h}$, we have d as $h\sqrt{h}$, or $h^{\frac{3}{2}}$, or the squares of the discharges pro-

Theory. proportional to the cubes of the heights in rectangular beds, and in their correſponding trapeziums.

72 Rules for finding the dimenſions

1. Knowing the mean depth and the proportion of the width and real depth, we can determine the dimenſions of the bed, and we have $w = q\,d + 2d$, and $h = d + \frac{2\,d}{q}$.

2. If we know the area and mean depth, we can in like manner find the dimenſions, that is, w and h: for $A = wh$, and $d = \frac{wh}{w+2h}$; therefore $w = \frac{+\sqrt{A^2}}{4d^2} - 2A + \frac{A}{2d}$

3. If d be known, and one of the dimenſions be given, we can find the other; for $d = \frac{wh}{w+2h}$ gives $w = \frac{2hd}{h-d}$, and $h = \frac{wd}{w-2d}$.

73 Mean depth,

4. If the velocity V and the ſlope S for a river in train be given, we can find the mean depth; for $V = \left(\frac{297}{\sqrt{S} - L\sqrt{S+1,6}} - 0,3\right)(\sqrt{d} - 0,1)$. Whence we deduce $\sqrt{d} - 0,1 = \frac{V}{\frac{297}{\sqrt{S} - L\sqrt{S+1,6}} - 0,3}$, and $\sqrt{d}$ = to this quantity $+ 0,1$.

74 And ſlope.

5. We can deduce the ſlope which will put in train a river whoſe channel has given dimenſions. We make $\frac{297(\sqrt{d} - 0,1)}{V + 0,3(\sqrt{d} - 0,1)} = \sqrt{S}$. This ſhould be $= \sqrt{S} - L\sqrt{S+1,6}$, which we correct by trials, which will be exemplified when we apply theſe doctrines to practice.

Having thus eſtabliſhed the relation between the different circumſtances of the form of the channel to our general formula, we proceed to conſider,

§ 2. *The gradations of velocity from the middle of the ſtream to the ſides.*

The knowledge of this is neceſſary for underſtanding the regimen of a river; for it is the velocity of the filaments in contact with the bed which produces any change in it, and occaſions any preference of one to another, in reſpect of regimen or ſtability. Did theſe circumſtances not operate, the water, true to the laws of hydraulics, and confined within the bounds which have been aſſigned them, would neither enlarge nor diminiſh the area of the channel. But this is all that we can promiſe of waters perfectly clear, running in pipes or hewn channels. But rivers, brooks, and ſmaller ſtreams, carry along waters loaded with mud or ſand, which they depoſit wherever their velocity is checked; and they tear up, on the other hand, the materials of the channel wherever their velocity is ſufficiently great. Nature, indeed, aims continually at an equilibrium, and works without ceaſing to perpetuate her own performances, by eſtabliſhing an equality of action and reaction, and proportioning the forms and direction of the motions to her agents, and to local circumſtances. Her work is ſlow but unceaſing; and what ſhe cannot accompliſh in a year ſhe will do in a century. The beds of our rivers have acquired ſome ſtability, becauſe they are the labour of ages; and it is to time that we owe thoſe deep and wide valleys which receive and confine our rivers in channels, which are now conſolidated, and with ſlopes which have been gradually moderated, ſo that they no longer either ravage our habitations or confound our boundaries. Art may imitate nature, and by directing her operations (which ſhe ſtill carries on according to her own impreſcriptible laws) according to our views, we can haſten her progreſs, and accompliſh our purpoſe, during the ſhort period of human life. But we can do this only by ſtudying the unalterable laws of mechaniſm. Theſe are preſented to us by ſpontaneous nature. Frequently we remain ignorant of their foundation: but it is not neceſſary for the proſperity of the ſubject that he have the talents of the ſenator; he can profit by the ſtatute without underſtanding its grounds. It is ſo in the preſent inſtance. We have not as yet been able to infer the law of retardation obſerved in the filaments of a running ſtream from any ſound mechanical principle. The problem, however, does not appear beyond our powers, if we aſſume, with Sir Iſaac Newton, that the velocity of any particular filament is the arithmetical mean between thoſe of the filaments immediately adjoining. We may be aſſured, that the filament in the axis of an inclined cylindrical tube, of which the current is in train, moves the faſteſt, and that all thoſe in the ſame circumference round it are moving with one velocity, and that the ſloweſt are thoſe which glide along the pipe. We may affirm the ſame thing of the motions in a ſemi-cylindrical inclined channel conveying an open ſtream. But even in theſe we have not yet demonſtrated the ratio between the extreme velocities, nor in the different circles. This muſt be decided experimentally.

And here we are under great obligations to Mr de Buat. He has compared the velocity in the axis of a prodigious number and variety of ſtreams, differing in ſize, form, ſlope, and velocity, and has computed in them all the mean velocity, by meaſuring the quantities of water diſcharged in a given time. His method of meaſuring the bottom velocity was ſimple and juſt. He threw in a gooſeberry, as nearly as poſſible, of the ſame ſpecific gravity with the water. It was carried along the bottom almoſt without touching it. See *Resistance of Fluids*, n° 67.

He diſcovered the following laws: 1. In ſmall velocities the velocity in the axis is to that at the bottom in a ratio of conſiderable inequality. 2. This ratio diminiſhes as the velocity increaſes, and in very great velocities approaches to the ratio of equality. 3. What was moſt remarkable was, that neither the magnitude of the channel, nor its ſlope, had any influence in changing this proportion, while the mean velocity remained the ſame. Nay, though the ſtream ran on a channel covered with pebbles or coarſe ſand, no difference worth minding was to be obſerved from the velocity over a poliſhed channel. 4. And if the velocity in the axis is conſtant, the velocity at the bottom is alſo conſtant, and is not affected by the depth of water or magnitude of the ſtream. In ſome experiments the depth was thrice the width, and in others the width was thrice the depth. This changed the proportion of the magnitude of the

Law of the velocities of different ſections of the ſtream

ſection to the magnitude of the rubbing part, but made no change on the ratio of the velocities. This is a thing which no theory could point out.

Another moſt important fact was alſo the reſult of his obſervation, viz. that *the mean velocity in any pipe or open ſtream is the arithmetical mean between the velocity in the axis and the velocity at the ſides of a pipe or bottom of an open ſtream.* We have already obſerved, that the ratio of the velocity in the axis to the velocity at the bottom diminiſhed as the mean velocity increaſed. This variation he was enabled to expreſs in a very ſimple manner, ſo as to be eaſily remembered, and to enable us to tell any one of them by obſerving another.

If we take unity from the ſquare root of the ſuperficial velocity, expreſſed in inches, the ſquare of the remainder is the velocity at the bottom; and the mean velocity is the half ſum of theſe two. Thus, if the velocity in the middle of the ſtream be 25 inches per ſecond, its ſquare root is five; from which if we take unity, there remains four. The ſquare of this, or 16, is the velocity at the bottom, and $\frac{25+16}{2}$, or $20\frac{1}{2}$, is the mean velocity.

This is a very curious and moſt uſeful piece of information. The velocity in the middle of the ſtream is the eaſieſt meaſured of all, by any light ſmall body floating down it; and the mean velocity is the one which regulates the train, the diſcharge, the effect on machines, and all the moſt important conſequences.

We may expreſs this by a formula of moſt eaſy recollection. Let V be the mean velocity, v the velocity in the axis, and u the velocity at the bottom; we have $u = \overline{\sqrt{v} - 1}^2$, and $V = \frac{v+u}{2}$.

Alſo $v = (\sqrt{V - \frac{1}{4}} + \frac{1}{2})^2$, and $v = (\sqrt{u} + 1)^2$.

$V = (\sqrt{v} - \frac{1}{2})^2 + \frac{1}{4}$, and $V = (\sqrt{u} + \frac{1}{2})^2 + \frac{1}{4}$.

$u = (\sqrt{v} - 1)^2$ and $u = (\sqrt{V - \frac{1}{4}} - \frac{1}{2})^2$. Theory.

Alſo $v - u = 2\sqrt{V - \frac{1}{4}}$ and $v - V, = V - u, = \sqrt{V - \frac{1}{4}}$: that is, the difference between theſe velocities increaſes in the ratio of the ſquare roots of the mean velocities diminiſhed by a ſmall conſtant quantity.

This may perhaps give the mathematicians ſome help in aſcertaining the law of degradation from the axis to the ſides. Thus, in a cylindrical pipe, we may conceive the current as conſiſting of an infinite number of cylindrical ſhells ſliding within each other like the draw tubes of a ſpy-glaſs. Each of theſe is in equilibrio, or as much accelerated by the one within it as it is retarded by the one without; therefore as the *momentum* of each diminiſhes in the proportion of its diameter (the thickneſs being ſuppoſed the ſame in all), the velocity of ſeparation muſt increaſe by a certain law from the ſides to the axis. The magnitude of the ſmall conſtant quantity here ſpoken of ſeems to fix this law.

79 Place of the mean velocity not diſcovered.

The place of the mean velocity could not be diſcovered with any preciſion. In moderate velocities it was not more than one-fourth or one-fifth of the depth diſtant from the bottom. In very great velocities it was ſenſibly higher, but never in the middle of the depth.

The knowledge of theſe three velocities is of great importance. The ſuperficial velocity is eaſily obſerved; hence the mean velocity is eaſily computed. This multiplied by the ſection gives the expence; and if we alſo meaſure the expanded border, and then obtain the mean depth (or $\sqrt{d}$), we can, by the formula of uniform motion, deduce the ſlope; or, knowing the ſlope, we can deduce any of the other circumſtances.

The following table of theſe three velocities will ſave the trouble of calculation in one of the moſt frequent queſtions of hydraulics.

Velocity

80 Table of the three principal velocities.

Velocity in Inches.			Velocity in Inches.			Velocity in Inches.		
Surface.	Bottom.	Mean.	Surface.	Bottom.	Mean.	Surface.	Bottom.	Mean.
1	0,000	0,5	34	23,339	28,660	67	51,639	59,319
2	0,172	1,081	35	24,167	29,583	68	52,505	60,252
3	0,537	1,768	36	25,	30,5	69	53,392	61,196
4	1,	2,5	37	25,827	31,413	70	54,273	62,136
5	1,526	3,263	38	26,667	32,333	71	55,145	63,072
6	2,1	4,050	39	27,51	33,255	72	56,023	64,012
7	2,709	4,854	40	28,345	34,172	73	56,862	64,932
8	3,342	5,67	41	29,192	35,096	74	57,700	65,895
9	4,	6,5	42	30,03	36,015	75	58,687	66,843
10	4,674	7,337	43	30,880	36,940	76	59,568	67,784
11	5,369	8,184	44	31,742	37,871	77	60,451	68,725
12	6,071	9,036	45	32,581	38,790	78	61,340	69,670
13	6,786	9,893	46	33,432	39,716	79	62,209	70,605
14	7,503	10,756	47	34,293	40,646	80	63,107	71,553
15	8,254	11,622	48	35,151	41,570	81	64,	72,5
16	9,	12,5	49	36,	42,5	82	64,883	73,441
17	9,753	13,376	50	36,857	43,428	83	65,780	74,390
18	10,463	14,231	51	37,712	44,356	84	66,651	75,325
19	11,283	15,141	52	38,564	45,282	85	67,568	76,284
20	12,055	16,027	53	39,438	46,219	86	68,459	77,229
21	12,674	16,837	54	40,284	47,142	87	69,339	78,169
22	13,616	17,808	55	41,165	48,082	88	70,224	79,112
23	14,402	18,701	56	42,016	49,008	89	71,132	80,066
24	15,194	19,597	57	42,968	49,984	90	72,012	81,006
25	16,	20,5	58	43,771	50,886	91	72,915	81,957
26	16,802	21,401	59	44,636	51,818	92	73,788	82,894
27	17,606	22,303	60	45,509	52,754	93	74,719	83,859
28	18,421	23,210	61	46,376	53,688	94	75,603	84,801
29	19,228	24,114	62	47,249	54,629	95	76,51	85,755
30	20,044	25,022	63	48,136	55,568	96	77,370	86,635
31	20,857	25,924	64	49,	56,5	97	78,305	87,652
32	21,678	26,839	65	49,872	57,436	98	79,192	88,596
33	22,506	27,753	66	50,751	58,376	99	80,120	89,56
						100	81,	90,5

The knowledge of the velocity at the bottom is of the greatest use for enabling us to judge of the action of the stream on its bed; and we shall now make some observations on this particular.

81 Operation of the stream on its bed.

Every kind of soil has a certain velocity consistent with the stability of the channel. A greater velocity would enable the waters to tear it up, and a smaller velocity would permit the deposition of more moveable materials from above. It is not enough, then, for the stability of a river, that the accelerating forces are so adjusted to the size and figure of its channel that the current may be in train: it must also be in equilibrio with the tenacity of the channel.

We learn from observation, that a velocity of three inches per second at the bottom will just begin to work upon fine clay fit for pottery, and however firm and compact it may be, it will tear it up. Yet no beds are more stable than clay when the velocities do not exceed this: for the water soon takes away the impalpable particles of the superficial clay, leaving the particles of sand sticking by their lower half in the rest of the clay, which they now protect, making a very permanent bottom, if the stream does not bring down gravel or coarse sand, which will rub off this very thin crust, and allow another layer to be worn off; a velocity of six inches will lift fine sand; eight inches will lift sand as coarse as linseed; 12 inches will sweep along fine gravel; 24 inches will roll along rounded pebbles an inch diameter; and it requires three feet per second at the bottom to sweep along shivery angular stones of the size of an egg.

82 How carried on.

The manner in which unwearied nature carries on some of these operations is curious, and deserves to be noticed a little. All must recollect the narrow ridges or wrinkles which are left on the sand by a temporary fresh or stream. They are observed to lie across the stream, and each ridge consists of a steep face AD, BF (fig. H.) which looks down the stream, and a gentler slope DB, FC, which connects this with the next ridge. As the stream comes over the first steep AD, it is directed almost perpendicularly against the point E immediately below D, and thus it gets hold of a particle of coarse sand, which it could not have detached from the rest had it been moving parallel to the surface of it. It easily rolls it up the gentle slope EB; arrived there, the particle tumbles over the ridge, and lies close at the bottom of it at F, where it is protected by the little eddy, which is formed in the very angle; other particles

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ticles lying about E are treated in the ſame way, and, tumbling over the ridge B, cover the firſt particle, and now protect it effectually from any further diſturbance. The ſame operation is going on at the bottom of each ridge. The brow or ſteep of the ridge gradually advances down the ſtream, and the whole ſet change their places, as repreſented by the dotted line *a d b f*; and after a certain time the particle which was depoſited at F is found in an unprotected ſituation, as it was in E, and it now makes another ſtep down the ſtream.

The Abbé Boſſut found, that when the velocity of the ſtream was juſt ſufficient for lifting the ſand (and a ſmall exceſs hindered this operation altogether) a ridge advanced about 20 feet in a day.

Since the current carries off the moſt moveable matters of the channel, it leaves the bottom covered with the remaining coarſer ſand, gravel, pebbles, and larger ſtones. To theſe are added many which come down the ſtream while it is more rapid, and alſo many which roll in from the ſides as the banks wear away. All theſe form a bottom much more ſolid and immoveable than a bottom of the medium ſoil would have been. But this does not always maintain the channel in a permanent form; but frequently occaſions great changes, by obliging the current, in the event of any ſudden freſh or ſwell, to enlarge its bed, and even to change it altogether, by working to the right and to the left, ſince it cannot work downwards. It is generally from ſuch accumulation of gravel and pebbles in the bottom of the bed that rivers change their channels.

It remains to aſcertain, in abſolute meaſures, the force which a current really exerts in attempting to drag along with it the materials of its channel; and which *will* produce this effect unleſs reſiſted by the inertia of theſe materials. It is therefore of practical importance to know this force.

Nor is it abſtruſe or difficult. For when a current is in train, the accelerating force is in equilibrio with the reſiſtance, and is therefore its immediate meaſure. Now this accelerating force is preciſely equal to the weight of the body of water in motion multiplied by the fraction which expreſſes the ſlope. The mean depth being equal to the quotient of the ſection divided by the border, the ſection is equal to the product of the mean depth multiplied by the border. Therefore, calling the border b, and the mean depth d, we have the ſection $= db$. The body of water in motion is therefore dbs (becauſe s was the ſlant length of a part whoſe difference of elevation is 1), and the accelerating force is $dbs \times \frac{1}{s}$, or db. But if we would only conſider this reſiſtance as correſponding to an unit of the length of the channel, we muſt divide the quantity db by s, and the reſiſtance is then $\frac{db}{s}$. And if we would conſider the reſiſtance only for an unit of the border, we muſt divide this expreſſion by b; and thus this reſiſtance (taking an inch for the unit) will be expreſſed for one ſquare inch of the bed by the weight of a bulk of water which has a ſquare inch for its baſe, and $\frac{d}{s}$ for its height. And laſtly, if E be taken for any given ſuperficial extent of the channel or bed, and F the obſtruction which we conſider as a ſort of friction, we ſhall have $F = \frac{Ed}{s}$.

Thus, let it be required to determine in pounds the reſiſtance or friction on a ſquare yard of a channel whoſe current is in train, which is 10 feet wide, four feet deep, and has a ſlope of one foot in a mile. Here E is nine feet. Ten feet width and four feet depth give a ſection of 40 feet. The border is 18 feet. Therefore $d = \frac{40}{18} = 2,1111$, and s is 5280. Therefore the friction is the weight of a column of water whoſe baſe is nine feet, and height $\frac{2,1111}{5280}$, or nearly $3\frac{6}{10}$ ounces avoirdupois.

§ 3. *Settlement of the Beds of Rivers.*

83 Simplicity and wiſdom diſplayed in the conduct of rivers.

He who looks with a careleſs eye at a map of the world, is apt to conſider the rivers which ramble over its ſurface as a chance-medley diſpoſition of the drainers which carry off the waters. But it will afford a moſt agreeable object to a conſiderate and contemplative mind, to take it up in this very ſimple light; and having conſidered the many ways in which the drenched ſurface might have been cleared of the ſuperfluous waters, to attend particularly to the very way which nature has followed. In following the troubled waters of a mountain torrent, or the pure ſtreams which trickle from their baſes, till he ſees them ſwallowed up in the ocean, and in attending to the many varieties in their motions, he will be delighted with obſerving how the ſimple laws of mechaniſm are made ſo fruitful in good conſequences, both by modifying the motions of the waters themſelves, and alſo by inducing new forms on the ſurface of the earth, fitted for re-acting on the waters, and producing theſe very modifications of their motions which render them ſo beneficial. The permanent beds of rivers are by no means fortuitous gutters haſtily ſcooped out by daſhing torrents; but both they and the valleys through which they flow are the patient but unceaſing labours of nature, prompted by goodneſs and directed by wiſdom.

Whether we trace a river from the torrents which collect the ſuperfluous waters of heaven, or from the ſprings which diſcharge what would otherwiſe be condemned to perpetual inactivity, each feeder is but a little rill which could not ramble far from its ſcanty ſource among growing plants and abſorbent earth, without being ſucked up and evaporated, did it not meet with other rills in its courſe. When united they form a body of water ſtill inconſiderable, but much more able, by its bulk, to overcome the little obſtacles to its motion; and the rivulet then moves with greater ſpeed, as we have now learned. At the ſame time, the ſurface expoſed to evaporation and abſorption is diminiſhed by the union of the rills. Four equal rills have only the ſurface of two when united. Thus the portion which eſcapes arreſtment, and travels downward, is continually increaſing. This is a happy adjuſtment to the other operations of nature. Were it otherwiſe, the lower and more valuable countries would be loaded with the paſſing waters in addition to their own ſurplus rains, and the immediate neighbourhood of the ſea would be almoſt covered by the drains of the interior

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countries. But, fortunately, those passing waters occupy less room as they advance, and by this wise employment of the most simple means, not only are the superfluous waters drained off from our fertile fields, but the drains themselves become an useful part of the country by their magnitude. They become the habitation of a prodigious number of fishes, which share the Creator's bounty; and they become the means of mutual communication of all the blessings of cultivated society. The various ramifications of the rivers scatter them over the face of the country, and bring them to every door. It is not even an indifferent circumstance, that they gather strength to cut out deep beds for themselves. By this means they cut off many springs. Without this, the produce of a heavy shower would make a swamp which would not dry up in many days. And it must be observed, that the same heat which is necessary for the vigorous growth of useful plants will produce a very copious evaporation. This must return in showers much too copious for immediate vegetation, and the overplus would be destructive. Is it not pleasant to contemplate this adjustment of the great operations of nature, so different from each other, that if chance alone directed the detail, it was almost an infinite odds that the earth would be uninhabitable?

84 Their effect on the countries through which they flow.

But let us follow the waters in their operations, and note the face of the countries through which they flow: attending to the breadth, the depth, and the slope of the valleys, we shall be convinced that their present situation is extremely different from what it was in ancient days; and that the valleys themselves are the works of the rivers, or at least of waters which have descended from the heights, loaded with all the lighter matters which they were able to bring away with them. The rivers flow now in beds which have a considerable permanency; but this has been the work of ages. This has given stability, both by filling up and smoothing the valleys, and thus lessening the changing causes, and also by hardening the beds themselves, which are now covered with aquatic plants, and lined with the stones, gravel, and coarser sand, out of which all the lighter matters have been washed away.

The surface of the high grounds is undergoing a continual change; and the ground on which we now walk is by no means the same which was trodden by our remote ancestors. The showers from heaven carry down into the valleys, or sweep along by the torrents, a part of the soil which covers the heights and steeps. The torrents carry this soil into the brooks, and these deliver part of it into the great rivers, and these discharge into the sea this fertilizing fat of the earth, where it is swallowed up, and forever lost for the purposes of vegetation. Thus the hillocks lose of their height, the valleys are filled up, and the mountains are laid bare, and show their naked precipices, which formerly were covered over with a flesh and skin, but now look like the skeleton of this globe. The low countries, raised and nourished for some time by the substance of the high lands, will go in their turn to be buried in the ocean; and then the earth, reduced to a dreary flat, will become an immense uninhabitable mass. This catastrophe is far distant, because this globe is in its youth, but it is not the less certain; and the united labours of the human race could not long protract the term.

But, in the mean time, we can trace a beneficent purpose, and a nice adjustment of seemingly remote circumstances. The grounds near the sources of all our rivers are indeed gradually stripped of their most fertile ingredients. But had they retained them for ages, the sentient inhabitants of the earth, or at least the nobler animals, with man at their head, would not have derived much advantage from it. The general laws of nature produce changes in our atmosphere which must ever render these great elevations unfruitful. That genial warmth, which is equally necessary for the useful plant as for the animal which lives on it, is confined to the lower grounds. The earth, which on the top of mount Hæmus could only bring forth moss and dittany, when brought into the gardens of Spalatro, produced pot-herbs so luxuriant, that Diocletian told his colleague Maximian that he had more pleasure in their cultivation than the Roman empire could confer. Thus nature not only provides us manure, but conveys it to our fields. She even keeps it safe in store for us till it shall be wanted. The tracts of country which are but newly inhabited by man, such as great part of America, and the newly discovered regions of Terra Australis, are still almost occupied by marshes and lakes, or covered with impenetrable forests; and they would remain long enough in this state, if population, continually increasing, did not increase industry, and multiply the hands of cultivators along with their necessities. The Author of Nature was alone able to form the huge ridges of the mountains, to model the hillocks and the valleys, to mark out the courses of the great rivers, and give the first trace to every rivulet; but has left to man the task of draining his own habitation and the fields which are to support him, because this is a task not beyond his powers. It was therefore of immense advantage to him that those parts of the globe into which he has not yet penetrated should remain covered with lakes, marshes, and forests, which keep in store the juice of the earth, which the influence of the air and the vivifying warmth of the sun would have expended long ere now in useless vegetation, and which the rains of heaven would have swept into the sea, had they not been thus protected by their situation or their cover. It is therefore the business of man to open up these mines of hoarded wealth, and to thank the Author of all good, who has thus husbanded them for his use, and left them as a rightful heritage for those of after days.

The earth had not in the remote ages, as in our day, those great canals, those capacious voiders, always ready to drain off the rain waters (of which only part is absorbed by the thirsty ground), and the pure waters of the springs from the foot of the hills. The rivers did not then exist, or were only torrents, whose waters, confined by the gullies and glens, are searching for a place to escape. Hence arise those numerous lakes in the interior of great continents, of which there are still remarkable relicks in North America, which in process of time will disappear, and become champaign countries. The most remote from the sea, unable to contain its waters, finds an issue through some gorge of the hills, and pours over its superfluous waters into a lower bason, which, in its turn, discharges its contents into another, and the last of the chain delivers its waters by a river into the ocean. The communication was originally begun by a simple overflowing at the lowest part of the margin. This made a torrent, which quickly

Theory.

85 Beneficent purpose displayed in the changes they produce.

Theory.

quickly deepened its bed; and this circumstance increasing its velocity, as we have seen, would extend this deepening backward to the lake, and draw off more of its waters. The work would go on rapidly at first, while earth and small stones only retarded the labours of nature; but these being washed away, and the channel hollowed out to the firm rock on all sides, the operation must go on very slowly, till the immense cascade shall undermine what it cannot break off, and then a new discharge will commence, and a quantity of flat ground will emerge all round the lake. The torrent, in the mean time, makes its way down the country, and digs a canal, which may be called the first sketch of a river, which will deepen and widen its bed continually. The waters of several basons united, and running together in a great body, will (according to the principles we have established) have a much greater velocity, with the same slope, than those of the lakes in the interior parts of the continent; and the sum of them all united in the baton next the sea, after having broken through its natural mound, will make a prodigious torrent, which will dig for itself a bed so much the deeper as it has more slope and a greater body of waters.

The formation of the first valleys, by cutting open many springs which were formerly concealed under ground, will add to the mass of running waters, and contribute to drain off the waters of these basons. In course of time many of them will disappear, and flat valleys among the mountains and hills are the traces of their former existence.

When nature thus traces out the courses of future rivers, it is to be expected that those streams will most deepen their channels which in their approach to the sea receive into their bed the greatest quantities of rain and spring waters, and that towards the middle of the continent they will deepen their channels less. In these last situations the natural slope of the fields causes the rain-water, rills, and the little rivulets from the springs, to seek their way to the rivers. The ground can sink only by the flattening of the hills and high grounds; and this must proceed with extreme slowness, because it is only the gentle, though incessant, work of the rains and springs. But the rivers, increasing in bulk and strength, and of necessity flowing over every thing, form to themselves capacious beds in a more yielding soil, and dig them even to the level of the ocean.

86 Beds of rivers not formed in the inferred state.

The beds of rivers by no means form themselves in one inclined plane. If we should suppose a canal AB (fig. 12.) perfectly straight and horizontal at B, where it joins with the sea, this canal would really be an inclined channel of greater and greater slope as it is farther from B. This is evident; because gravity is directed towards the centre of the earth, and the angle CAB contained between the channel and the plumb-line at A is smaller than the similar angle CDB; and consequently the inclination to the horizon is greater in A than in D. Such a canal therefore would make the bed of a river; and some have thought that this was the real form of nature's work; but the supposition is a whim, and it is false. No river has a slope at all approaching to this. It would be 8 inches declivity in the mile next the ocean, 24 inches in the second mile, 40 inches in the third, and so on in the duplicate ratio (for the whole elevation) of the distances from the sea. Such a river would quickly tear up its bed in the mountains (were there any grounds high enough to receive it), and, except its first cascade, would soon acquire a more gentle slope. But the fact is, and it is the result of the imprescriptible laws of nature, that the continued track of a river is a succession of inclined channels, whose slope diminishes by steps as the river approaches to the sea. It is not enough to say that this results from the natural slope of the countries through which it flows, which we observe to increase in declivity as we go to the interior parts of the continent. Were it otherwise, the equilibrium to which nature aims in all her operations would still produce the gradual diminution of the slope of rivers. Without it they could not be in a permanent train.

87 How the permanent course of a river is established.

That we may more easily form a notion of the manner in which the permanent course of a river is established, let us suppose a stream or rivulet *sa* (fig. 13.) far up the country, make its way through a soil perfectly uniform to the sea, taking the course *s a b c d e f*, and receiving the *permanent accessions* of the streams *g a*, *h b*, *i c*, *k d*, *l e*, and that its velocity and slope in all its parts are so suited to the tenacity of the soil and magnitude of its section, that neither do its waters during the annual freshes tear up its banks or deepen its bed, nor do they bring down from the high lands materials which they deposit in the channel in times of smaller velocity. Such a river may be said to be in a *permanent state*, to be in *conservation*, or to have *stability*. Let us call this state of a river its REGIMEN, denoting by the word the proper adjustment of the velocity of the stream to the tenacity of the channel. The velocity of its regimen must be the same throughout, because it is this which regulates its action on the bottom, which is the same from its head to the sea. That its bed may have stability, the mean velocity of the current must be constant, notwithstanding the inequality of discharge through its different sections by the brooks which it receives in its course, and notwithstanding the augmentation of its section as it approaches the sea.

On the other hand, it behoved this exact regimen to commence at the mouth of the river, by the working of the whole body of the river, in concert with the waters of the ocean, which always keep within the same limits, and make the ultimate level invariable. This working will begin to dig the bed, giving it as little breadth as possible: for this working consists chiefly in the efforts of falls and rapid streams, which arise of themselves in every channel which has too much slope. The bottom deepens, and the sides remain very steep, till they are undermined and crumble down; and being then diluted in the water, they are carried down the stream, and deposited where the ocean checks its speed. The banks crumble down anew, the valley or hollow forms; but the section, always confined to its bottom, cannot acquire a great breadth, and it retains a good deal of the form of the trapezium formerly mentioned. In this manner does the regimen begin to be established from *f* to *e*.

With respect to the next part *d e*, the discharge or produce is diminished by the want of the brook *l e*. It must take a similar form, but its area will be diminished, in order that its velocity may be the same; and its mean depth *d* being less than in the portion *e f* below, the slope must be greater. Without these conditions we could not have the uniform velocity, which the assumed

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89 The process of nature. Such is the process of nature to be observed in every river on the surface of the globe. It long appeared a kind of paradox to the theorists; and it was this observation of the increasing, or at least this continued velocity with smaller slope, as the rivers increased by the addition of their tributary streams, which caused Guglielmini to have recourse to his new principle, the energy of deep waters. We have now seen in what this energy consists. It is only a greater quantity of motion remaining in the middle of a great stream of water after a quantity has been retarded by the sides and bottom; and we see clearly, that since the addition of a new and perhaps an equal stream does not occupy a bed of double surface, the proportion of the retardations to the remaining motion must continually diminish as a river increases by the addition of new streams. If therefore the slope were not diminished, the regimen would be destroyed, and the river would dig up its channel. We have a full confirmation of this in the many works which have been executed on the Po, which runs with rapidity through a rich and yielding soil. About the year 1600, the waters of the Panaro, a very considerable river, were added to the Po Grande; and although it brings along with it in its freshes a vast quantity of sand and mud, it has greatly deepened the whole Tronco di Venezia from the confluence to the sea. This point was clearly ascertained by Manfredi about the 1720, when the inhabitants of the valleys adjacent were alarmed by the project of bringing in the waters of the Rheno, which then ran through the Ferrarese. Their fears were overcome, and the Po Grande continues to deepen its channel every day with a prodigious advantage to the navigations; and there are several extensive marshes which now drain off by it, after having been for ages under water: and it is to be particularly remarked, that the Rheno is the foulest river in its freshes of any in that country. We insert this remark, because it may be of great practical utility, as pointing out a method of preserving and even improving the depth of rivers or drains in flat countries, which is not obvious, and rather appears improper: but it is strictly conformable to a true theory, and to the operations of nature, which never fails to adjust every thing so as to bring about an equilibrium. Whatever the declivity of the country may have been originally, the regimen begins to be settled at the mouths of the rivers, and the slopes are diminished in succession as we recede from the coast. The original slopes inland may have been much greater; but they will (when busy nature has completed her work) be left somewhat, and only so much greater, that the velocity may be the same notwithstanding the diminution of the section and mean depth.

Confirmed by example.

90 Effect of freshes. Freshes will disturb this methodical progress relative only to the successive permanent additions; but their effects chiefly accelerate the deepening of the bed, and the diminution of the slope, by augmenting the velocity during their continuance. But when the regimen of the permanent additions is once established, the freshes tend chiefly to widen the bed, without greatly deepening it: for the aquatic plants, which have been growing and thriving during the peaceable state of the river, are now laid along, but not swept away, by the freshes and protect the bottom from their attacks; and the stones and gravel, which must have been left bare in a course of years, working on the soil, will also collect in the bottom, and greatly augment its power of resistance; and even if the floods should have deepened the bottom some small matter, some mud will be deposited as the velocity of the freshes diminishes, and this will remain till the next flood.

We have supposed the soil uniform through the whole course: This seldom happens; therefore the circumstances which insure permanency, or the regimen of a river, may be very different in its different parts and in different rivers. We may say in general, that the farther that the regimen has advanced up the stream in any river, the more slowly will it convey its waters to the sea.

There are some general circumstances in the motion of rivers which it will be proper to take notice of just now, that they may not interrupt our more minute examination of their mechanism, and their explanations will then occur of themselves as corollaries of the propositions which we shall endeavour to demonstrate.

91 In narrow valleys rivers adhere to the steepest hills. In a valley of small width the river always occupies the lowest part of it; and it is observed, that this is seldom in the middle of the valley, and is nearest to that side on which the slope from the higher grounds is steepest, and this without regard to the line of its course. The river generally adheres to the steepest hills, whether they advance into the plain or retire from it. This general feature may be observed over the whole globe. It is divided into copartments by great ranges of mountains; and it may be observed, that the great rivers hold their course not very far from them, and that their chief feeders come from the other side. In every copartment there is a swell of the low country at a distance from the bounding ridge of mountains; and on the summit of this swell the principal feeders of the great river have their sources.

The name *valley* is given with less propriety to these immense regions, and is more applicable to tracks of champaign land which the eye can take in at one view. Even here we may observe a resemblance. It is not always in the very lowest part of this valley that the river has its bed; although the waters of the river flow in a channel below its immediate banks, these banks are frequently higher than the grounds at the foot of the hills. This is very distinctly seen in Lower Egypt, by means of the canals which are carried backward from the Nile for accelerating its fertilizing inundations. When the calishes are opened to admit the waters, it is always observed that the districts most remote are the first covered, and it is several days before the immediately adjoining fields partake of the blessing. This is a consequence of that general operation of nature by which the valleys are formed. The river in its floods is loaded with mud, which it retains as long as it rolls rapidly along its limited bed, tumbling its waters over and over, and taking up in every spot as much as it

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it depofits: but as foon as it overflows its banks, the very enlargement of its fection diminifhes the velocity of the water; and it may be obferved ftill running in the track of its bed with great velocity, while the waters on each fide are ftagnant at a very fmall diftance: Therefore the water, on getting over the banks, muft depofit the heavieft, the firmeft, and even the greateft part of its burden, and muft become gradually clearer to it approaches the hills. Thus a gentle flope is given as the valley in a direction which is the reverfe of what one would expect. It is, however, almoft always the cafe in wide valleys, efpecially if the great river comes through a foft country. The banks of the brooks and ditches are obferved to be deeper as they approach the river, and the merely fuperficial drains run backwards from it.

92 The bed of rivers enlarged for the

We have already obferved, that the enlargement of the bed of a river, in its approach to the fea, is not in proportion to the increafe of its waters. This would be the cafe even if the velocity continued the fame: and therefore, fince the velocity even increafes, in confequence of the greater energy of a large body of water, which we now underftand diftinctly, a ftill fmaller bed is fufficient for conveying all the water to the fea.

93 The water being checked by the tides of the ocean.

This general law is broken, however, in the immediate neighbourhood of the fea; becaufe in this fituation the velocity of the water is checked by the paffing flood-tides of the ocean. As the whole waters muft ftill be difcharged, they require a larger bed, and the enlargement will be chiefly in width. The fand and mud are depofited when the motion is retarded. The depth of the mouth of the channel is therefore diminifhed. It muft therefore become wider. If this be done on a coaft expofed to the force of a regular tide, which carries the waters of the ocean acrofs the mouth of the river, this regular enlargement of the mouth will be the only confequence, and it will generally widen till it wafhes the foot of the adjoining hills; but if there be no tide in the fea, or a tide which does not fet acrofs the mouth of the river, the fands muft be depofited at the fides of the opening, and become additions to the fhore, lengthening the mouth of the channel. In this fheltered fituation, every trivial circumftance will caufe the river to work more on particular parts of the bottom, and deepen the channel there. This keeps the mud fufpended in fuch parts of the channel, and it is not depofited till the ftream has fhot farther out into the fea. It is depofited on the fides of thofe deeper parts of the channel, and increafes the velocity in them, and thus ftill farther protracts the depofition. Rivers fo fituated will not only lengthen their channels, but will divide them, and produce iflands at their mouths. A bufh, a tree torn up by the roots by a mountain torrent, and floated down the ftream, will thus inevitably produce an ifland; and rivers in which this is common will be continually fhifting their mouths. The Miffiffippi is a moft remarkable inftance of this. It has a long courfe through a rich foil, and difembogues itfelf into the bay of Mexico, in a place where there is no *paffing tide*, as may be feen by comparing the hours of high water in different places. No river that we know carries down its ftream fuch numbers of rooted-up trees: they frequently interrupt the navigation, and render it always dangerous in the night-time. This river is fo befet with flats and fhifting fands at its mouth, that the moft experienced pilots are puzzled; and it has protruded its channel above 50 miles in the fhort period that we have known it. The difcharge of the Danube is very fimilar: fo is that of the Nile; for it is difcharged into a ftill corner of the Mediterranean. It may now be faid to have acquired confiderable permanency; but much of this is owing to human induftry, which ftrips it as much as poffible of its fubfideable matter. The Ganges too is in a fituation pretty fimilar, and exhibits fimilar phenomena. The Maragnon might be noticed as an exception; but it is not an exception. It has flowed very far in a level bed, and its waters come pretty clear to Para; but befides, there is a ftrong tranfverfe tide, or rather current, at its mouth, fetting to the fouth-eaft both during flood and ebb. The mouth of the Po is perhaps the moft remarkable of any on the furface of this globe, and exhibits appearances extremely fingular. Its difcharge is into a fequeftered corner of the Adriatic. Though there be a more remarkable tide in this gulf than in any part of the Mediterranean, it is ftill but trifling, and it either fets directly in upon the mouth of the river, or retires ftraight away from it. The river has many mouths, and they fhift prodigiouffly. There has been a general increafe of the land very remarkable. The marfhes where Venice now ftands were, in the Auguftan age, everywhere penetrable by the fifhing boats, and in the 5th century could only bear a few miferable huts; now they are covered with crowds of ftately buildings. Ravenna, fituated on the fouthernmoft mouth of the Po, was, in the Auguftan age, at the extremity of a fwamp, and the road to it was along the top of an artificial mound, made by Auguftus at immenfe expence. It was, however, a fine city, containing extenfive docks, arfenals, and other maffy buildings, being the great military port of the empire, where Auguftus laid up his great fhips of war. In the Gothic times it became almoft the capital of the Weftern empire, and was the feat of government and of luxury. It muft, therefore, be fuppofed to have every accommodation of opulence, and we cannot doubt of its having paved ftreets, wharfs, &c.; fo that its wealthy inhabitants were at leaft walking dryfooted from houfe to houfe. But now it is an Italian mile from the fea, and furrounded with vineyards and cultivated fields, and is acceffible in every direction. All this muft have been formed by depofitions from the Po, flowing through Lombardy loaded with the fpoils of the Alps, which were here arrefted by the reeds and bulrufhes of the marfh. Thefe things are in common courfe; but when wells are dug, we come to the pavements of the ancient city, and thefe pavements are all on one exact level, and they *are eight feet below the furface of the fea at low water*. This cannot be afcribed to the fubfiding of the ancient city. This would be irregular, and greateft among the heavy buildings. The tomb of Theodoric remains, and the pavement round it is on a level with all the others. The lower ftory is always full of water; fo is the lower ftory of the cathedral to the depth of three feet. The ornaments of both thefe buildings leave no room to doubt that they were formerly dry; and fuch a building as the cathedral could not fink without crumbling into pieces.

It is by no means eafy to account for all this. The depofitions

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depositions of the Po and other rivers must raise the ground; and yet the rivers must still flow over all. We must conclude that the surface of the Adriatic is by no means level, and that it slopes like a river from the Lagoon of Venice to the eastward. In all probability it even slopes considerably outwards from the shore. This will not hinder the alternations of ebb and flow tide, as will be shown in its proper place. The whole shores of this gulph exhibit most uncommon appearances.

94 Rivers are convex athwart the stream, and the cause of it.

The last general observations which we shall make in this place is, that the surface of a river is not flat, considered athwart the stream, but convex: this is owing to its motion. Suppose a canal of stagnant water; its surface would be a perfect level. But suppose it possible by any means to give the middle waters a motion in the direction of its length, they must drag along with them the waters immediately contiguous. These will move less swiftly, and will in like manner drag the waters without them; and thus the water at the sides being abstracted, the depth must be less, and the general surface must be convex across. The fact in a running stream is similar to this; the side waters are withheld by the sides, and every filament is moving more slowly than the one next it towards the middle of the river, but faster than the adjoining filament on the land side. This alone must produce a convexity of surface. But besides this, it is demonstrable that the pressure of a running stream is diminished by its motion, and the diminution is proportional to the height which would produce the velocity with which it is gliding past the adjoining filament. This convexity must in all cases be very small. Few rivers have the velocity nearly equal to eight feet *per* second, and this requires a height of one foot only. An author quoted by Mr Buffon says, that he has observed on the river Aveiron an elevation of three feet in the middle during floods; but we suspect some error in the observation.

§ 4. *Of the Windings of Rivers.*

95 Winding course of rivers, how formed.

Rivers are seldom straight in their course. Formed by the hand of nature, they are accommodated to every change of circumstance. They wind around what they cannot get over, and work their way to either side according as the resistance of the opposite bank makes a straight course more difficult; and this seemingly fortuitous rambling distributes them more uniformly over the surface of a country, and makes them every where more at hand, to receive the numberless rills and rivulets which collect the waters of our springs and the superfluities of our showers, and to comfort our habitations with the many advantages which cultivation and society can derive from their presence. In their feeble beginnings the smallest inequality of slope or consistency is enough to turn them aside and make them ramble through every field, giving drink to our herds and fertility to our soil. The more we follow nature into the minutiæ of her operations, the more must we admire the inexhaustible fertility of her resources, and the simplicity of the means by which she produces the most important and beneficial effects. By thus twisting the course of our rivers into 10,000 shapes, she keeps them long amidst our fields, and thus compensates for the declivity of the surface, which otherwise would tumble them with great rapidity into the ocean, loaded with the best and richest of our soil. Without this, the showers of heaven would have little influence in supplying the waste of incessant evaporation. But as things are, the rains are kept slowly trickling along the sloping sides of our hills and steeps, winding round every clod, nay every plant, which lengthens their course, diminishes their slope, checks their speed, and thus prevents them from quickly brushing off from every part of the surface the lightest and best of the soil. The flattest of our holm lands would be too steep, and the rivers would shoot along through our finest meadows, hurrying every thing away with them, and would be unfit for the purposes of inland conveyance, if the inequalities of soil did not make them change this headlong course for the more beautiful meanders which we observe in the course of the small rivers winding through our meadows. Those rivers are in general the straightest in their course which are the most rapid, and which roll along the greatest bodies of water; such are the Rhone, the Po, the Danube. The smaller rivers continue more devious in their progress, till they approach the sea, and have gathered strength from all their tributary streams.

96 What nature has for man to perform.

Every thing aims at an equilibrium, and this directs even the ramblings of rivers. It is of importance to understand the relation between the force of a river and the resistance which the soil opposes to those deviations from a rectilineal course; for it may frequently happen that the general procedure of nature may be inconsistent with our local purposes. Man was set down on this globe, and the task of cultivating it was given him by nature, and his chief enjoyment seems to be to struggle with the elements. He must not find things to his mind, but he must mould them to his own fancy. Yet even this seeming anomaly is one of nature's most beneficent laws; and his exertions must still be made in conformity with the general train of the operations of mechanical nature: and when we have any work to undertake relative to the course of rivers, we must be careful not to thwart their general rules, otherwise we shall be sooner or later punished for their infraction. Things will be brought back to their former state, if our operations are inconsistent with that equilibrium which is constantly aimed at, or some new state of things which is equivalent will be soon induced. If a well regulated river has been improperly deepened in some place, to answer some particular purpose of our own, or if its breadth has been improperly augmented, we shall soon see a deposition of mud or sand choak up our fancied improvements; because, as we have enlarged the section without increasing the slope or the supply, the velocity must diminish, and floating matters must be deposited.

It is true, we frequently see permanent channels where the forms are extremely different from that which the waters would dig for themselves in an uniform soil, and which approaches a good deal to the trapezium described formerly. We see a greater breadth frequently compensate for a want of depth; but all such deviations are a sort of constraint, or rather are indications of inequality of soil. Such irregular forms are the works of nature; and if they are permanent, the equilibrium is obtained. Commonly the bottom is harder than the sides, consisting of the coarsest of the sand and of gravel; and therefore the necessary section can be obtained only by increasing the width. We

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are accustomed to attend chiefly to the appearances which prognosticate mischief, and we interpret the appearances of a permanent bed in the same way, and frequently form very false judgments. When we see one bank low and flat, and the other high and abrupt, we suppose that the waters are passing along the first in peace, and with a gentle stream, but that they are rapid on the other side, and are tearing away the bank; but it is just the contrary. The bed being permanent, things are in equilibrio, and each bank is of a form just competent to that equilibrium. If the soil on both sides be uniform, the stream is most rapid on that side where the bank is low and flat, for in no other form would it withstand the action of the stream; and it has been worn away till its flatness compensates for the greater force of the stream. The stream on the other side must be more gentle, otherwise the bank could not remain abrupt. In short, in a state of permanency, the velocity of the stream and form of the bank are just suited to each other. It is quite otherwise before the river has acquired its proper regimen.

97 Necessity of attending to nature in regulating course of rivers.

A careful consideration therefore of the general features of rivers which have settled their regimen, is of use for informing us concerning their internal motions, and directing us to the most effectual methods of regulating their course.

We have already said that perpendicular brims are inconsistent with stability. A semicircular section is the form which would produce the quickest train of a river whose expence and slope are given; but the banks at B and D (fig. 14.) would crumble in, and lie at the bottom, where their horizontal surface would secure them from farther change. The bed will acquire the form G *c* F, of equal section, but greater width, and with brims less shelving. The proportion of the velocities at A and *c* may be the same with that of the velocities at A and C; but the velocity at G and F will be less than it was formerly at B, C, or D; and the velocity in any intermediate point E, being somewhat between those at F and *c*, must be less than it was in any intermediate point of the semicircular bed. The velocities will therefore decrease along the border from *c* towards G and F, and the steepness of the border will augment at the same time, till, in every point of the new border G *c* F, these two circumstances will be so adjusted that the necessary equilibrium is established.

The same thing must happen in our trapezium. The slope of the brims may be exact, and will be retained; it will, however, be too great anywhere below, where the velocity is greater, and the sides will be worn away till the banks are undermined and crumble down, and the river will maintain its section by increasing its width. In short, no border made up of straight lines is consistent with that gradation of velocity which will take place whenever we depart from a semicircular form. And we accordingly see, that in all natural channels the section has a curvilineal border, with the slope increasing gradually from the bottom to the brim.

These observations will enable us to understand how nature operates when the inequality of surface or of tenacity obliges the current to change its direction, and the river forms an elbow.

Supposing always that the discharge continues the same, and that the mean velocity is either preserved or restored, the following conditions are necessary for a permanent regimen.

98 Conditions necessary for a permanent regimen.

1. The depth of water must be greater in the elbow than anywhere else.

2. The main stream, after having struck the concave bank, must be reflected in an equal angle, and must then be in the direction of the next reach of the river.

3. The angle of incidence must be proportioned to the tenacity of the soil.

4. There must be in the elbow an increase of slope, or of head of water, capable of overcoming the resistance occasioned by the elbow.

The reasonableness, at least, of these conditions will appear from the following considerations.

99 Reasonableness of these conditions.

1. It is certain that force is expended in producing this change of direction in a channel which by supposition diminishes the current. The diminution arising from any cause which can be compared with friction must be greater when the stream is directed against one of the banks. It may be very difficult to state the proportion, and it would occupy too much of our time to attempt it; but it is sufficient that we be convinced that the retardation is greater in this case. We see no cause to increase the mean velocity in the elbow, and we must therefore conclude that it is diminished. But we are supposing that the discharge continues the same; the section must therefore augment, or the channel increase its transverse dimensions. The only question is, In what manner it does this, and what change of form does it affect, and what form is competent to the final equilibrium and the consequent permanency of the bed? Here there is much room for conjecture. Mr Buat reasons as follows. If we suppose that the points B and C (fig. 15.) continue on a level, and that the points H and I at the beginning of the next reach are also on a level, it is an inevitable consequence that the slope along CMI must be greater than along BEH, because the depression of H below B is equal to that of I below C, and BEH is longer than CMI. Therefore the velocity along the convex bank CMI must be greater than along BEH. There may even be a stagnation and an eddy in the contrary direction along the concave bank. Therefore, if the form of the section were the same as up the stream, the sides could not stand on the convex bank. When therefore the section has attained a permanent form, and the banks are again in equilibrio with the action of the current, the convex bank must be much flatter than the concave. If the water is really still on the concave bank, that bank will be absolutely perpendicular; nay, may overhang.—Accordingly, this state of things is matter of daily observation, and justifies our reasoning, and entitles us to say, that this is the nature of the internal motion of the filaments which we cannot distinctly observe. The water moves most rapidly along the convex bank, and the thread of the stream is nearest to this side. Reasoning in this way, the section, which we may suppose to have been originally of the form M *b a* E (fig. 16.) assumes the shape MBAE.

2. Without presuming to know the mechanism of the internal motions of fluids, we know that superficial waves are reflected precisely as if they were elastic bodies, making the angles of incidence and reflection equal. In as far therefore as the superficial wave is concerned in the operation, Mr Buat's second position is just.

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The permanency of the next reach requires that its axis shall be in the direction of the line EP which makes the angle GEP=FEN. If the next reach has the direction EQ, MR, the wave reflected in the line ES will work on the bank at S, and will be reflected in the line ST, and work again on the opposite bank at T. We know that the effect of the superficial motion is great, and that it is the principal agent in destroying the banks of canals. So far therefore Mr Buat is right. We cannot say with any precision or confidence how the actions of the under filaments are modified; but we know no reason for not extending to the under filaments what appears so probable with respect to the surface water.

3. The third position is no less evident. We do not know the mode of action of the water on the bank; but our general notions on this subject, confirmed by common experience, tell us that the more obliquely a stream of water beats on any bank, the less it tends to undermine it or wash it away. A stiff and cohesive soil therefore will suffer no more from being almost perpendicularly buffetted by a stream than a friable sand would suffer from water gliding along its face. Mr Buat thinks, from experience, that a clay bank is not sensibly affected till the angle FEB is about 36 degrees.

4. Since there are causes of retardation, and we still suppose that the discharge is kept up, and that the mean velocity, which had been diminished by the enlargement of the section, is again restored, we must grant that there is provided, in the mechanism of these motions, an accelerating force adequate to this effect. There can be no accelerating force in an open stream but the superficial slope. In the present case it is undoubtedly so; because by the deepening of the bottom where there is an elbow in the stream, we have of necessity a counter slope. Now, all this head of water, which must produce the augmentation of velocity in that part of the stream which ranges round the convex bank, will arise from the check which the water gets from the concave bank. This occasions a gorge or swell up the stream, enlarges a little the section at BVC; and this, by the principle of uniform motion, will augment all the velocities, deepen the channel, and put every thing again into its train as soon as the water gets into the next reach. The water at the bottom of this bason has very little motion, but it defends the bottom by this very circumstance.

200 Remarks on these conditions, and the reasons of them.

Such are the notions which Mr de Buat entertains of this part of the mechanism of running waters. We cannot say that they are very satisfactory, and they are very opposite to the opinions commonly entertained on the subject. Most persons think that the motion is most rapid and turbulent on the side of the concave bank, and that it is owing to this that the bank is worn away till it become perpendicular, and that the opposite bank is flat, because it has not been gnawed away in this manner. With respect to this general view of the matter, these persons may be in the right; and when a stream is turned into a crooked and yielding channel for the first time, this is its manner of action. But Mr Buat's aim is to investigate the circumstances which obtain in the case of a regimen; and in this view he is undoubtedly right as to the facts, though his mode of accounting for these facts may be erroneous. And as this is the only useful view to be taken of the subject, it ought chiefly to be attended to in all our attempts to procure stability to the bed of a river, without the expensive helps of masonry, &c. If we attempt to secure permanency by deepening on the inside of the elbow, our bank will undoubtedly crumble down, diminish the passage, and occasion a more violent action on the hollow bank. The most effectual mean of security is to enlarge the section: and if we do this on the inside bank, we must do it by widening the stream very much, that we may give a very sloping bank. Our attention is commonly drawn to it when the hollow bank is giving way, and with a view to stop the ravages of the stream. Things are not now in a state of permanency, but nature is working in her own way to bring it about. This may not suit *our* purpose, and we must thwart her. The phenomena which we then observe are frequently very unlike to those described in the preceding paragraphs. We see a violent tumbling motion in the stream towards the hollow bank. We see an evident accumulation of water on that side, and the point B is frequently higher than C. This regorging of the water extends to some distance, and is of itself a cause of greater velocity, and contributes, like a head of stagnant water, to force the stream through the bend, and to deepen the bottom. This is clearly the case when the velocity is excessive, and the hollow bank able to abide the shock. In this situation the water thus heaped up escapes where it best can; and as the water, obstructed by an obstacle put in its way, escapes by the sides, and there has its velocity increased, so here the water gorged up against the hollow bank swells over towards the opposite side, and passes round the convex bank with an increased velocity. It depends much on the adjustment between the velocity and consequent accumulation, and the breadth of the stream and the angle of the elbow, whether this augmentation of velocity shall reach the convex bank; and we sometimes see the motion very languid in that place, and even depositions of mud and sand are made there. The whole phenomena are too complicated to be accurately described in general terms, even in the case of perfect regimen: for this regimen is relative to the consistence of the channel; and when this is very great, the motions may be most violent in every quarter. But the preceding observations are of importance, because they relate to ordinary cases and to ordinary channels.

It is evident, from Mr Buat's second position, that the proper form of an elbow depends on the breadth of the stream as well as on the radius of curvature, and that every angle of elbow will require a certain proportion between the width of the river and the radius of the sweep. Mr Buat gives rules and formulæ for all these purposes, and shows that in one sweep there may be more than one reflection or rebound. It is needless to enlarge on this matter of mere geometrical discussion. It is with the view of enabling the engineer to trace the windings of a river in such a manner that there shall be no rebounds which shall direct the stream against the sides, but preserve it always in the axis of every reach. This is of consequence, even when the bends of the river are to be secured by masonry or piling; for we have seen the necessity of increasing the section, and the tendency which the waters have to deepen the channel on that side where the rebound is made. This tends to

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to undermine our defences, and obliges us to give them deeper and more solid foundations in such places. But any person accustomed to the use of the scale and compasses will form to himself rules of practice equally sure and more expeditious than Mr de Buat's formulæ.

101 Resistance caused by an elbow, and mode of overcoming it.

We proceed, therefore, to what is more to our purpose, the consideration of the resistance caused by an elbow, and the methods of providing a force capable of overcoming it. We have already taken notice of the salutary consequences arising from the rambling course of rivers, inasmuch as it more effectually spreads them over the face of a country. It is no less beneficial by diminishing their velocity. This it does both by lengthening their course, which diminishes the declivity, and by the very resistance which they meet with at every bend. We derive the chief advantages from our rivers, when they no longer shoot their way from precipice to precipice, loaded with mud and sand, but peaceably roll along their clear waters, purified during their gentler course, and offer themselves for all the purposes of pasturage, agriculture, and navigation. The more a river winds its way round the foot of the hills, the more is the resistance of its bed multiplied; the more obstacles it meets with in its way from its source to the sea, the more moderate is its velocity; and instead of tearing up the very bowels of the earth, and digging for itself a deep trough, along which it sweeps rocks and rooted-up trees, it flows with majestic pace even with the surface of our cultivated grounds, which it embellishes and fertilizes.

We may with safety proceed on the supposition, that the force necessary for overcoming the resistance arising from a rebound is as the square of the velocity; and it is reasonable to suppose it proportional to the square of the sine of the angle of incidence, and this for the reasons given for adopting this measure of the general *Resistance of Fluids*. It cannot, however, claim a greater confidence here than in that application; and it has been shown in that article with what uncertainty and limitations it must be received. We leave it to our readers to adopt either this or the simple ratio of the sines, and shall abide by the duplicate ratio with Mr Buat, because it appears by his experiments that this law is very exactly observed in tubes in inclinations not exceeding 40°; whereas it is in these small angles that the application to the general resistance of fluids is most in fault. But the correction is very simple, if this value shall be found erroneous. There can be little doubt that the force necessary for overcoming the resistance will increase as the number of rebounds.—Therefore we may express the resistance, in general, by the formula $r = \frac{V^2 s^2 n}{m}$; where r is the resistance, V the mean velocity of the stream, s the sine of the angle of incidence, n the number of equal rebounds (that is, having equal angles of incidence), and m is a number to be determined by experiment. Mr de Buat made many experiments on the resistance occasioned by the bendings of pipes, none of which differed from the result of the above formula above one part in twelve; and he concludes, that the resistance to one bend may be estimated at $\frac{V^2 s^2}{3000}$. The experiment was in this form: A pipe of 1 inch diameter, and 10 feet long, was formed with 10 rebounds of 36° each. A head of water was applied to it, which gave the water a velocity of six feet *per second*. Another pipe of the same diameter and length, but without any bendings, was subjected to a pressure of a head of water, which was increased till the velocity of efflux was also six feet *per* second. The additional head of water was $5\frac{9}{100}$ inches. Another of the same diameter and length, having one bend of 24° 34', and running 85 inches *per* second, was compared with a straight pipe having the same velocity, and the difference of the heads of water was $\frac{37}{100}$ of an inch. A computation from these two experiments will give the above result, or in English measure, $r = \frac{V^2 s^2}{3200}$ very nearly. It is probable that this measure of the resistance is too great; for the pipe was of uniform diameter even in the bends: whereas in a river properly formed, where the regimen is exact, the capacity of the section of the bend is increased.

102 Theory applied to inclined tubes and open streams.

The application of this theory to inclined tubes and to open streams is very obvious, and very legitimate and safe. Let AB (fig. 17.) be the whole height of the reservoir A B I K, and B C the horizontal length of a pipe, containing any number of rebounds, equal or unequal, but all regular, that is, constructed according to the conditions formerly mentioned. The whole head of water should be conceived as performing, or as divided into portions which perform, three different offices.—One portion, $AD = \frac{V^2}{505}$, impels the water into the entry of the pipe with the velocity with which it really moves in it; another portion EB is in equilibrio with the resistances arising from the mere length of the pipe expanded into a straight line; and the third portion DE serves to overcome the resistance of the bends. If, therefore, we draw the horizontal line B C, and, taking the pipe B C out of its place, put it in the position DH, with its mouth C in H, so that DH is equal to BC, the water will have the same velocity in it that it had before. *N. B.* For greater simplicity of argument, we may suppose that when the pipe was inserted at B, its bends lay all in a horizontal plane, and that when it is inserted at D, the plane in which all its bends lie slopes only in the direction DH, and is perpendicular to the plane of the figure. We repeat it, the water will have the same velocity in the pipes B C and D H, and the resistances will be overcome. If we now prolong the pipe D H towards L to any distance, repeating continually the same bendings in a series of lengths, each equal to DH, the motion will be continued with the velocity corresponding to the pressure of the column AD; because the declivity of the pipe is augmented in each length equal to DH, by a quantity precisely sufficient for overcoming all the resistances in that length; and the true slope in these cases is B E + E D, divided by the expanded length of the pipe B C or D H.

The analogy which we were enabled to establish between the uniform motion or the train of pipes and of open streams, intitles us now to say, that when a river has bendings, which are regularly repeated at equal intervals, its slope is compounded of the slope which is necessary for overcoming the resistance of a straight channel of its whole expanded length, agreeably to the

the formula for uniform motion, and of the slope which is necessary for overcoming the resistance arising from its bendings alone.

Thus, let there be a river which, in the expanded course of 6000 fathoms, has 10 elbows, each of which has 30° of rebound; and let its mean velocity be 20 inches in a second. If we would learn its whole slope in this 6000 fathoms, we must first find (by the formula of uniform motion) the slope s which will produce the velocity of 20 inches in a straight river of this length, section, and mean depth. Suppose this to be $\frac{1}{11000}$, or 20 inches in this whole length. We must then find (by the formula $\frac{V^2 \operatorname{Sin}^2}{3200}$) the slope necessary for overcoming the resistance of 10 rebounds of 30° each. This we shall find to be $6\frac{1}{7}$ inches in the 6000 fathoms. Therefore the river must have a slope of $26\frac{1}{7}$ inches in 6000 fathoms, or $\frac{1}{2800}$; and this slope will produce the same velocity which 20 inches, or $\frac{1}{11000}$, would do in a straight running river of the same length.

Part II. PRACTICAL INFERENCES.

HAVING thus established a theory of a most important part of hydraulics, which may be confided in as a just representation of nature's procedure, we shall apply it to the examination of the chief results of every thing which art has contrived for limiting the operations of nature, or modifying them so as to suit our particular views. Trusting to the detail which we have given of the connecting principles, and the chief circumstances which co-operate in producing the ostensible effect; and supposing that such of our readers as are interested in this subject will not think it too much trouble to make the applications in the same detail; we shall content ourselves with merely pointing out the steps of the process, and showing their foundation in the theory itself: and frequently, in place of the direct analysis which the theory enables us to employ for the solution of the problems, we shall recommend a process of approximation by trial and correction, sufficiently accurate, and more within the reach of practical engineers. We are naturally led to consider in order the following articles.

103 Approximation by trial and correction recommended to practical engineers.

1. The effects of permanent additions of every kind to the waters of a river, and the most effectual methods of preventing or removing inundations.

2. The effects of weirs, bars, sluices, and keeps of every kind, for raising the surface of a river; and the similar effects of bridges, piers, and every thing which contracts the section of the stream.

3. The nature of canals; how they differ from rivers in respect of origin, discharge, and regimen, and what conditions are necessary for their most perfect construction.

4. Canals for draining land, and drafts or canals of derivation from the main stream. The principles of their construction, so that they may suit their intended purposes, and the change which they produce on the main stream, both above and below the point of derivation.

Of the effects of permanent additions to the waters of a river.

104 Problems and examples on the effects of permanent additions to the waters of a river.

FROM what has been said already, it appears that to every kind of soil or bed there corresponds a certain velocity of current, too small to hurt it by digging it up, and too great to allow the deposition of the materials which it is carrying along. Supposing this known for any particular situation, and the quantity of water which the channel must of necessity discharge, we may wish to learn the smallest slope which must be given to this stream, that the waters may run with the required velocity. This suggests

PROB. I. Given the discharge D of a river, and V its velocity of regimen: required the smallest slope s, and the dimensions of its bed?

Since the slope must be the smallest possible, the bed must have the form which will give the greatest mean depth d, and should therefore be the trapezium formerly described; and its area and perimeter are the same with those of a rectangle whose breadth is twice its height b. These circumstances give us the equation $\frac{D}{V} = 2b^2$. For the area of the section is twice the square of the height, and the discharge is the product of this area and the velocity. Therefore $\sqrt{\frac{D}{2V}} = b$ and $\sqrt{\frac{2D}{V}}$ = the breadth b.

The formula of uniform motion gives $\sqrt{s} - L\sqrt{s} + 1,6 = \frac{297(\sqrt{d} - 0,1}{V + 0,3(\sqrt{d} - 0,1)}$. Instead of $\sqrt{d} - 0,1$, put its equal $\sqrt{\frac{b}{2}} - 0,1$, and every thing being known in the second member of this equation, we easily get the value of s by a few trials after the following manner. Suppose that the second member is equal to any number, such as 9. First suppose that $\sqrt{s}$ is $= 9$. Then the hyperbolic logarithm of $9 + 1,6$ or of $10,6$ is 2,36. Therefore we have $\sqrt{s} - L\sqrt{s} + 1,6 = 9 - 2,36, = 6,64$; whereas it should have been $= 9$. Therefore say $6,64 : 9 = 9 : 12,2$ nearly. Now suppose that $\sqrt{s}$ is $= 12,2$. Then $L\ 12,2 + 1,6 = L\ 13,8$, $= 2,625$ nearly, and $12,2 - 2,625$ is 9,575, whereas it should be 9. Now we find that changing the value of $\sqrt{s}$ from 9 to 12,2 has changed the answer from 6,64 to 9,575, or a change of 3,2 in our assumption has made a change of 2,935 in the answer, and has left an error of 0,575. Therefore say $2,935 : 0,575 = 3,2 : 0,628$. Then, taking 0,628 from 12,2, we have (for our next assumption or value of $\sqrt{s}$) 11,572. Now $11,572 + 1,6 = 13,172$, and L 13,172 is 2,58 nearly. Now try this last value $11,572 - 2,58$ is 9,008, sufficiently exact. This may serve as a specimen of the trials by which we may avoid an intricate analysis.

PROB. II. Given the discharge D, the slope s, and the velocity V, of permanent regimen, to find the dimensions of the bed.

Let x be the width, and y the depth of the channel, and S the area of the section. This must be $= \frac{D}{V}$, which is therefore $= xy$. The denominator s being given,

given, we may make $\sqrt{s}-L\sqrt{s+1,6}=\sqrt{B}$, and the formula of mean velocity will give $V=\frac{297(\sqrt{d}-0,1)}{\sqrt{B}}-0,3\,(\sqrt{d}-0,1)$, which we may express thus: $V=(\sqrt{d}-0,1)\left(\frac{297}{\sqrt{B}}-0,3\right)$, which gives $\frac{V}{\frac{297}{\sqrt{B}}-0,3}=\sqrt{d}-0,1)$; and finally, $\frac{V}{\frac{297}{\sqrt{B}}-0,3}+0,1=\sqrt{d}$.

Having thus obtained what we called the mean depth, we may suppose the section rectangular. This gives $d=\frac{xy}{x+2y}$. Thus we have two equations, $S=xy$ and $d=\frac{xy}{x+2y}$.

From which we obtain $x=\sqrt{\left(\frac{S}{2d}\right)^2-2S}+\frac{S}{2d}$.

And having the breadth x and area S, we have $y=\frac{S}{x}$. And then we may change this for the trapezium often mentioned.

These are the chief problems on this part of the subject, and they enable us to adjust the slope and channel of a river which receives any number of successive permanent additions by the influx of other streams. This last informs us of the rise which a new supply will produce, because the additional supply will require additional dimensions of the channel; and as this is not supposed to increase in breadth, the addition will be in depth. The question may be proposed in the following problem.

Prob. III. Given the slope s, the depth and the base of a rectangular bed (or a trapezium), and consequently the discharge D, to find how much the section will rise, if the discharge be augmented by a given quantity.

Let h be the height after the augmentation, and w the width for the rectangular bed. We have in any uniform current $\sqrt{d}=\frac{V}{\frac{297}{\sqrt{B}}-0,3}$ Raising this to a square, and putting for d and V their values $\frac{wh}{w+2h}$ and $\frac{D}{wh}$, and making $\frac{297}{\sqrt{B}}-0,3=K$, the equation becomes $\frac{wh}{w+2h}=\left(\frac{D}{wh\,K}+0,1\right)^2$ Raising the second member to a square, and reducing, we obtain a cubic equation, to be solved in the usual manner.

But the solution would be extremely complicated. We may obtain a very expeditious and exact approximation from this consideration, that a small change in one of the dimensions of the section will produce a much greater change in the section and the discharge than in the mean depth d. Having therefore augmented the unknown dimension, which is here the height, make use of this to form a new mean depth, and then the new equation $\sqrt{d}=\frac{D}{wh\left(\frac{297}{\sqrt{B}}-0,3\right)}+0,1$ will give us another value of h, which will rarely exceed the truth by $\frac{1}{15}$. This serves (by the same process) for finding another, which will commonly be sufficiently exact. We shall illustrate this by an example.

Let there be a river whose channel is a rectangle 150 feet wide and six feet deep, and which discharges 1500 cubic feet of water per second, having a velocity of 20 inches, and slope of $\frac{1}{12667}$, or about $\frac{7}{12}$ of an inch in 100 fathoms. How much will it rise if it receives an addition which triples its discharge? and what will be its velocity?

If the velocity remained the same, its depth would be tripled; but we know by the general formula that its velocity will be greatly increased, and therefore its depth will not be tripled. Suppose it to be doubled, and to become 12 feet. This will give $d=10,34483$, or 124,138 inches; then the equation $\sqrt{d}-0,1=\frac{D}{wh\left(\frac{297}{\sqrt{B}}-0,3\right)}$, or $h=\frac{D}{w(\sqrt{d}-0,1)\left(\frac{297}{\sqrt{B}}-0,3\right)}$, and in which we have $\sqrt{B}=107,8$, $D=4500$; $\sqrt{d}-0,1=11,0417$, will give $h=13,276$; whereas it should have been 12. This shows that our calculated value of d was too small. Let us therefore increase the depth by 0,9, or make it 12,9, and repeat the calculation. This will give us $\sqrt{d}-0,1=11,3927$, and $h=12,867$, instead of 13,276. Therefore augmenting our data 0,9 changes our answer 0,409. If we suppose these small changes to retain their proportions, we may conclude that if 12 be augmented by the quantity $x\times0,9$, the quantity 13,276 will diminish by the quantity $x\times0,409$. Therefore, that the estimated value of h may agree with the one which results from the calculation, we must have $12+x\times0,9=13,276-x\times0,409$. This will give $x=\frac{1,276}{1,309}=0,9748$, and $x\times0,9=0,8773$; and $h=12,8773$. If we repeat the calculation with this value of h, we shall find no change.

This value of h gives $d=131,8836$ inches. If we now compute the new velocity by dividing the new discharge 4500 by the new area $150\times12,8773$, we shall find it to be 27,95 inches, in place of 20, the former velocity.

We might have made a pretty exact first assumption, by recollecting what was formerly observed, that when the breadth is very great in proportion to the depth, the mean depth differs insensibly from the real depth, or rather follows nearly the same proportions, and that the velocities are proportional to the square roots of the depths. Call the first discharge d, the height h, and velocity v, and let D, H, and V, express these things in their augmented state. We have $v=\frac{d}{wh}$ and $V=\frac{D}{wH}$, and $v:V=\frac{d}{h}:\frac{D}{H}$, and $v^2:V^2=\frac{d^2}{h^2}:\frac{D^2}{H^2}$. But by this remark $v^2:V^2=h:H$. Therefore $h:H=\frac{d^2}{h^2}:\frac{D^2}{H^2}$, and $\frac{hD^2}{H^2}=\frac{Hd^2}{h^2}$, and $h^3D^2=H^3d^2$, and $d^2:D^2=h^3:H^3$ (a useful theorem) and $H^3=\frac{h^3D^2}{d^2}$, and $H=\sqrt[3]{\frac{hD^2}{d^2}}=12,48$.

Or we might have made the same assumption by the remark

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remark also formerly made on this case, that the squares of the discharges are nearly as the cubes of the height, or $1500^2 : 4500^2 = 6^3 : 12,48^3$.

And in making these first guesses we shall do it more exactly, by recollecting that a certain variation of the mean depth d requires a greater variation of the height, and the increment will be to the height nearly as half the height to the width, as may easily be seen. Therefore, if we add to 12,48 its $\frac{6,24}{150}$th part, or its 24th part, viz. 0,52, we have 13 for our first assumption, exceeding the truth only an inch and a half. We mention these circumstances, that those who are disposed to apply these doctrines to the solution of practical cases may be at no loss when one occurs of which the regular solution requires an intricate analysis.

105 The inverse of the problems show the effect of enlarging the section of a river,

It is evident that the inverse of the foregoing problems will show the effects of enlarging the section of a river, that is, will show how much its surface will be sunk by any proposed enlargement of its bed. It is therefore needless to propose such problems in this place. Common sense directs us to make these enlargements in those parts of the river where their effect will be greatest, that is, where it is shallowest when its breadth greatly exceeds its depth, or where it is narrowest (if its depth exceed the breadth, which is a very rare case), or in general, where the slope is the smallest for a short run.

106 And direct us in the method of embankments.

The same general principles direct us in the method of embankments, for the prevention of floods, by enabling us to ascertain the heights necessary to be given to our banks. This will evidently depend, not only on the additional quantity of water which experience tells us a river brings down during its freshes, but also on the distance at which we place the banks from the natural banks of the river. This is a point where mistaken economy frequently defeats its own purpose. If we raise our embankment at some distance from the natural banks of the river, not only will a smaller height suffice, and consequently a smaller base, which will make a saving in the duplicate proportion of the height; but our works will be so much the more durable nearly, if not exactly, in the same proportion. For by thus enlarging the additional bed which we give to the swollen river, we diminish its velocity almost in the same proportion that we enlarge its channel, and thus diminish its power of ruining our works. Except, therefore, in the case of a river whose freshes are loaded with fine sand to destroy the turf, it is always proper to place the embankment at a considerable distance from the natural banks. Placing them at half the breadth of the stream from its natural banks, will nearly double its channel; and, except in the case now mentioned, the space thus detached from our fields will afford excellent pasture.

The limits of such a work as ours will not permit us to enter into any detail on the method of embankment. It would require a volume to give instructions as to the manner of founding, raising, and securing the dykes which must be raised, and a thousand circumstances which must be attended to. But a few general observations may be made, which naturally occur while we are considering the manner in which a river works in settling or altering its channel.

It must be remarked, in the first place, that the river will rise higher when embanked than it does while it was allowed to spread; and it is by no means easy to conclude to what height it will rise from the greatest height to which it has been observed to rise in its floods. When at liberty to expand over a wide valley; then it could only rise till it overflowed with a thickness or depth of water sufficient to produce a motion backwards into the valley quick enough to take off the water as fast as it was supplied; and we imagine that a foot or two would suffice in most cases. The best way for a prudent engineer will be to observe the utmost rise remembered by the neighbours in some gorge, where the river cannot spread out. Measure the increased section in this place, and at the same time recollect, that the water increases in a much greater proportion than the section; because an increase of the hydraulic mean depth produces an increase of velocity in the duplicate proportion of the depth nearly. But as this augmentation of velocity will obtain also between the embankments, it will be sufficiently exact to suppose that the section must be increased here nearly in the same proportion as at the gorge already mentioned. Neglecting this method of information, and regulating the height of our embankment by the greatest swell that has been observed in the plain, will assuredly make them too low, and render them totally useless.

A line of embankment should always be carried on by a strict concert of the proprietors of both banks through its whole extent. A greedy proprietor, by advancing his own embankment beyond that of his neighbours, not only exposes himself to risk by the working of the waters on the angles which this will produce, but exposes his neighbours also to danger, by narrowing the section, and thereby raising the surface and increasing the velocity, and by turning the stream athwart, and causing it to shoot against the opposite bank. The whole should be as much as possible in a line; and the general effect should be to make the course of the stream straighter than it was before. All bends should be made more gentle, by keeping the embankment further from the river in all convex lines of the natural bank, and bringing it nearer where the bank is concave. This will greatly diminish the action of the waters on the bankment, and insure their duration. The same maxim must be followed in fencing any brook which discharges itself into the river. The bends given at its mouth to the two lines of embankment should be made less acute than those of the natural brook, although, by this means, two points of land are left out. And the opportunity should be embraced of making the direction of this transverse brook more sloping than before, that is, less athwart the direction of the river.

It is of great consequence to cover the outside of the dyke with very compact turf closely united. If it admit water, the interior part of the wall, which is always more porous, becomes drenched in water, and this water acts with its statical pressure, tending to burst the bank on the land-side, and will quickly shift it from its seat. The utmost care should therefore be taken to make it and keep it perfectly tight. It should be a continued fine turf, and every bare spot should be carefully covered with fresh sod; and rat holes must be carefully closed up.

Of

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Of straighting or changing the course of rivers.

We have seen, that every bending of a river requires an additional slope in order to continue its train, or enable it to convey the same quantity of water without swelling in its bed. Therefore the effect of taking away any of these bends must be to sink the waters of the river. It is proper, therefore, to have it in our power to estimate these effects. It may be desirable to gain property, by taking away the sweeps of a very winding stream. But this may be prejudicial, by destroying the navigation on such a river. It may also hurt the proprietors below, by increasing the velocity of the stream, which will expose them to the risk of its overflowing, or of its destroying its bed, and taking a new course. Or this increase of velocity may be inconsistent with the regimen of the new channel, or at least require larger dimensions than we should have given it if ignorant of this effect.

Our principles of uniform motion enable us to answer every question of this kind which can occur; and Mr de Buat proposes several problems to this effect. The regular solutions of them are complicated and difficult; and we do not think them necessary in this place, because they may all be solved in a manner not indeed so elegant, because indirect, but abundantly accurate, and easy to any person familiar with those which we have already considered.

We can take the exact level across all these sweeps, and thus obtain the whole slope. We can measure with accuracy the velocity in some part of the channel which is most remote from any bend, and where the channel itself has the greatest regularity of form. This will give us the expence or discharge of the river, and the mean depth connected with it. We can then examine whether this velocity is precisely such as is compatible with stability in the straight course. If it is, it is evident that if we cut off the bends, the greater slope which this will produce will communicate to the waters a velocity incompatible with the regimen suited to this soil, unless we enlarge the width of the stream, that is, unless we make the new channel more capacious than the old one. We must now calculate the dimensions of the channel which, with this increased slope, will conduct the waters with the velocity that is necessary. All this may be done by the foregoing problems; and we may easiest accomplish this by steps. First, suppose the bed the same with the old one, and calculate the velocity for the increased slope by the general formula. Then change one of the dimensions of the channel, so as to produce the velocity we want, which is a very simple process. And in doing this, the object to be kept chiefly in view is not to make the new velocity such as will be incompatible with the stability of the new bed.

Having accomplished this first purpose, we learn (in the very solution) how much shallower this channel with its greater slope will be than the former, while it discharges all the waters. This diminution of depth must increase the slope and the velocity, and must diminish the depth of the river, above the place where the alteration is to be made. How far it produces these effects may be calculated by the general formula. We then see whether the navigation will be hurt, either in the old river up the stream, or in the new channel. It is plain that all these points cannot be reconciled. We may make the new channel such, that it shall leave a velocity compatible with stability, and that it shall not diminish the depth of the river up the stream. But, having a greater slope, it must have a smaller mean depth, and also a smaller real depth, unless we make it of a very inconvenient form.

The same things viewed in a different light, will show us what depression of waters may be produced by rectifying the course of a river in order to prevent its overflowing. And the process which we would recommend is the same with the foregoing. We apprehend it to be quite needless to measure the angles of rebound, in order to *compute* the slope which is *employed* for sending the river through the bend, with a view to supersede this by straighting the river. It is infinitely easier and more exact to measure the levels themselves, and then we know the effect of removing them.

Nor need we follow Mr de Buat in solving problems for diminishing the slope and velocity, and deepening the channel of a river by bending its course. The expence of this would be in every case enormous; and the practices which we are just going to enter upon afford infinitely easier methods of accomplishing all the purposes which are to be gained by these changes.

Of Bars, Weirs, and Jetteys, for raising the Surface of Rivers.

108 Problems, examples, and consequences of raising the surface of rivers.

We propose, under the article *Water-Works*, to consider in sufficient practical detail all that relates to the construction and mechanism of these and other erections in water; and we confine ourselves, in this place, to the mere effect which they will produce on the current of the river.

We gave the name of *weir* or *bar* to a dam erected across a river for the purpose of raising its waters, whether in order to take off a draft for a mill or to deepen the channel. Before we can tell the effect which they will produce, we must have a general rule for ascertaining the relation between the height of the water above the lip of the weir or bar, and the quantity of water which will flow over.

First, then, with respect to a weir, represented in fig. 18. and fig. 18. n° 2. The latter figure more resembles their usual form, consisting of a dam of solid masonry, or built of timber, properly fortified with shoars and banks. On the top is set up a strong plank FR, called the wasteboard, or waster, over which the water flows. This is brought to an accurate level, of the proper height. Such voiders are frequently made in the side of a mill-course, for letting the superfluous water run off. This is properly the WASTER, VOIDER: it is also called an OFFSET. The same observations will explain all these different pieces of practice. The following questions occur in course.

Prob. I. Given the length of an offset or wasteboard, made in the face of a reservoir of stagnant water, and the depth of its lip under the horizontal surface of the water, to determine the discharge, or the quantity of water which will run over in a second?

Let AB be the horizontal surface of the still water, and F the lip of the wasteboard. Call the depth BF under the surface b, and the length of the wasteboard l. *N. B.* The water is supposed to flow over into another bason or channel, so much lower that the surface

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HL of the water is lower, or at least not higher, than F.

If the water could be supported at the height BF, BF might be considered as an orifice in the side of a vessel. In which case, the discharge would be the same as if the whole water were flowing with the velocity acquired from the height $\frac{2}{3}$ BF, or $\frac{4}{9}h$. And if we suppose that there is no contraction at the orifice, the mean velocity would be $\sqrt{2g\frac{4}{9}h} = \sqrt{772\frac{2}{3}h}$, in English inches per second. The area of this orifice is lh. Therefore the discharge would be $lh\sqrt{772\frac{2}{3}h}$, all being measured in inches. This is the usual theory; but it is not an exact representation of the manner in which the efflux really happens. The water cannot remain at the height BF; but in drawing towards the wasteboard from all sides, it forms a convex surface AIH, so that the point I, where the vertical drawn from the edge of the wasteboard meets the curve, is considerably lower than B. But as all the mass above F is supposed perfectly fluid, the pressure of the incumbent water is propagated, in the opinion of Mr de Buat, to the filament passing over at F without any diminution. The same may be said of any filament between F and I. Each tends, therefore, to move in the same manner as if it were really impelled through an orifice in its place. Therefore the motions through every part of the line or plane IF are the same as if the water were escaping through an orifice IF, made by a sluice let down on the water, and keeping up the water of the reservoir to the level AB. It is beyond a doubt (says he) that the height IF must depend on the whole height BF, and that there must be a certain determined proportion between them. He does not attempt to determine this proportion theoretically, but says, that his experiments ascertain it with great precision to be the proportion of one to two, or that IF is always one-half of BF. He says, however, that this determination was not by an immediate and direct measurement; he concluded it from the comparison of the quantities of water discharged under different heights of the water in the reservoir.

We cannot help thinking that this reasoning is very defective in several particulars. It cannot be inferred, from the laws of hydrostatical pressure, that the filament at I is pressed forward with all the weight of the column BI. The particle I is really at the surface; and considering it as making part of the surface of a running stream, it is subjected to hardly any pressure, any more than the particles on the surface of a cup of water held in the hand, while it is carried round the axis of the earth and round the sun. Reasoning according to his own principles, and availing himself of his own discovery, he should say, that the particle at I has an accelerating force depending on its slope only; and then he should have endeavoured to ascertain this slope. The motion of the particle at I has no immediate connection with the pressure of the column BI; and if it had, the motion would be extremely different from what it is: for this pressure alone would give it the velocity which Mr Buat assigns it. Now it is already passing through the point I with the velocity which it has acquired in descending along the curve AI; and this is the real state of the case. The particles are passing through with a velocity already acquired by a sloping current; and they are accelerated by the hydrostatical pressure of the water above them. The internal mechanism of these motions is infinitely more complex than Mr Buat here supposes; and on this supposition, he very nearly abandons the theory which he has so ingeniously established, and adopts the theory of Guglielmini which he had exploded. At the same time, we think that he is not much mistaken when he asserts, that the motions are nearly the same as if a sluice had been let down from the surface to I. For the filament which passes at I has been gliding down a curved surface, and has not been exposed to any friction. It is perhaps the very case of hydraulics, where the obstructions are the smallest; and we should therefore expect that its motion will be the least retarded.

We have therefore no hesitation in saying, that the filament at I is in the very state of motion which the theory would assign to it if it were passing under a sluice, as Mr Buat supposes. And with respect to the inferior filaments, without attempting the very difficult task of investigating their motions, we shall just say, that we do not see any reason for supposing that they will move slower than our author supposes. Therefore, though we reject his theory, we admit his experimental proposition in general; that is, we admit that the *whole* water which passes through the plane IF moves with the velocity (though not in the same direction) with which it would have run through a sluice of the same depth; and we may proceed with his determination of the quantity of water discharged.

If we make BC the axis of a parabola BEGH, the velocities of the filaments passing at I and F will be represented by the ordinates IE and FG, and the discharge by the area IEGF. This allows a very neat solution of the problem. Let the quantity discharged per second be D, and let the whole height BF be h. Let 2 G be the quantity by which we must divide the square of the mean velocity, in order to have the producing height. This will be less than $2g$, the acceleration of gravity, on account of the convergency at the sides and the tendency to convergence at the lip F. We formerly gave for its measure 726 inches, instead of 772, and said that the inches discharged per second from an orifice of one inch were 26,49, instead of 27,78. Let x be the distance of any filament from the horizontal line AB. An element of the orifice, therefore, (for we may give it this name) is $l\dot{x}$. The velocity of this element is $\sqrt{2Gx}$, or $\sqrt{2G}\times\sqrt{x}$. The discharge from it is $l\sqrt{2G}\,x^{\frac{1}{2}}\dot{x}$, and the fluent of this, or $D = \int l\sqrt{2G}\,x^{\frac{1}{2}}\dot{x}$, which is $\frac{2}{3}l\sqrt{2G}\,x^{\frac{3}{2}} + C$.

To determine the constant quantity C, observe that Mr de Buat found by experiment that BI was in all cases $\frac{1}{2}$ BF. Therefore D must be nothing when $x = \frac{1}{2}h$; consequently $C = -\frac{2}{3}l\sqrt{2G}\left(\frac{h}{2}\right)^{\frac{3}{2}}$, and the completed fluent, will be $D = \frac{2}{3}l\sqrt{2G}\left(x^{\frac{3}{2}} - \left(\frac{h}{2}\right)^{\frac{3}{2}}\right)$.

Now make $x = h$, and we have

$$D = \tfrac{2}{3}l\sqrt{2G}\left(h^{\frac{3}{2}} - \left(\tfrac{h}{2}\right)^{\frac{3}{2}}\right) = \tfrac{2}{3}l\sqrt{2G}\left(1 - \left(\tfrac{1}{2}\right)^{\frac{3}{2}}\right)h^{\frac{3}{2}}.$$

But $1 - \left(\frac{1}{2}\right)^{\frac{3}{2}} = 0{,}64645$, and $\frac{2}{3}$ of this is $0{,}431$: Therefore, finally,

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$D = 0{,}431\ (\sqrt{2G}\, h^{\frac{3}{2}} \times l)$.

If we now put 26,49 or $26\frac{1}{2}$ for $\sqrt{2G}$, or the velocity with which a head of water of one inch will impel the water over a weir, and multiply this by 0,431, we get the following quantity 11,4172, or, in numbers of easy recollection, $11\frac{1}{2}$, for the cubic inches of water per second, which runs over every inch of a wasteboard when the edge of it is one inch below the surface of the reservoir; and this must be multiplied by $h^{\frac{3}{2}}$, or by the square root of the cube of the head of water. Thus let the edge of the wasteboard be four inches below the surface of the water. The cube of this is 64, of which the square root is eight. Therefore a wasteboard of this depth under the surface, and three feet long, will discharge every second $8 \times 36 \times 11\frac{1}{2}$ cubic inches of water, or $1\frac{8}{10}$ cubic feet, English measure.

The following comparisons will show how much this theory may be depended on. Col. 1. shows the depth of the edge of the board under the surface; 2. shows the discharge by theory; and, 3. the discharge actually observed. The length of the board was $18\frac{1}{3}$ inches. *N. B.* The number in Mr Buat's experiments are here reduced to English measure.

D.	*D. Theor.*	*D. Exp.*	*E.*
1,778	506	524	28,98
3,199	1222	1218	69,83
4,665	2153	2155	123,03
6,753	3750	3771	214,29

The last column is the cubic inches discharged in a second by each inch of the wasteboard. The correspondence is undoubtedly very great. The greatest error is in the first, which may be attributed to a much smaller lateral contraction under so small a head of water.

But it must be remarked, that the calculation proceeds on two suppositions. The height FI is supposed $\frac{1}{4}$ of BI; and 2 G is supposed 726. It is evident, that by increasing the one and diminishing the other, nearly the same answers may be produced, unless much greater variations of h be examined. Both of these quantities are matters of considerable uncertainty, particularly the first; and it must be farther remarked, that this was not measured, but deduced from the uniformity of the experiments. We presume that Mr Buat tried various values of G, till he found one which gave the *ratios* of discharge which he observed. We beg leave to observe, that in a set of numerous experiments which we had access to examine, BI was uniformly much less than $\frac{1}{2}$; it was very nearly $\frac{2}{7}$: and the quantity discharged was greater than what would result from Mr Buat's calculation. It was farther observed, that IF depended very much on the form of the wasteboard. When it was a very thin board of considerable depth, IF was very considerably greater than if the board was thick, or narrow, and set on the top of a broad dam-head, as in fig. 18. n° 2.

It may be proper to give the formula a form which will correspond to any ratio which experience may discover between BF and IF. Thus, let BI be $\frac{m}{n}$ BF. The formula will be $D = \frac{2}{3}\, l \sqrt{2G} \left(1 - \left(\frac{m}{n}\right)^{\frac{3}{2}}\right) h^{\frac{3}{2}}$

It is hoped that this and some other fundamental facts in practical hydraulics will soon be determined by accurate experiments. The Honourable Board for Fisheries and Improvements in Scotland have allotted a sum of money for making the necessary experiments, and the results will be published by their authority. Meantime, this theory of Mr de Buat is of great value to the practical engineer, who at present must content himself with a very vague conjecture, or take the calculation of the erroneous theory of Guglielmini. By that theory, the board of three feet, at the depth of four inches, should discharge nearly $3\frac{1}{10}$ cubic feet per second, which is almost double of what it really delivers.

We presume, therefore, that the following table will be acceptable to practical engineers, who are not familiar with such computations. It contains, in the first column, the depth in English inches from the surface of the stagnant water of a reservoir to the edge of the wasteboard. The second column is the cubic feet of water discharged in a minute by every inch of the wasteboard.

Depth.	*Discharge.*
1	0,403
2	1,142
3	2,095
4	3,225
5	4,507
6	5,925
7	7,466
8	9,122
9	10,884
10	12,748
11	14,707
12	16,758
13	18,895
14	21,117
15	23,419
16	25,800
17	28,258
18	30,786

When the depth does not exceed four inches, it will not be exact enough to take proportional parts for the fractions of an inch. The following method is exact.

If they be odd quarters of an inch, look in the table for as many inches as the depth contains quarters, and take the eighth part of the answer. Thus, for $3\frac{3}{4}$ inches, take the eighth part of 23,419, which corresponds to 15 inches. This is 2,927.

If the wasteboard is not on the face of a dam, but in a running stream, we must augment the discharge by multiplying the section by the velocity of the stream. But this correction can seldom occur in practice; because, in this case, the discharge is previously known; and it is h that we want; which is the object of the next problem.

We only beg leave to add, that the experiments which we mention as having been already made in this country, give a result somewhat greater than this table, *viz.* about $\frac{1}{16}$. Therefore, having obtained the answer by this table, add to it its 16th part, and we apprehend that it will be extremely near the truth.

When, on the other hand, we know the discharge over a wasteboard, we can tell the depth of its edge under the surface of the stagnant water of the reservoir, because we have $h = \left(\frac{D}{11\frac{1}{2}\, l}\right)^{\frac{2}{3}}$ very nearly.

We

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We are now in a condition to solve the problem respecting a weir across a river.

Prob. II. The discharge and section of a river being given, it is required to determine how much the waters will be raised by a weir of the whole breadth of the river, discharging the water with a clear fall, that is, the surface of the water in the lower channel being below the edge of the weir?

In this case we have $2\,G = 746$ nearly, because there will be no contraction at the sides when the weir is the whole breadth of the river. But further, the water is not now stagnant, but moving with the velocity $\frac{D}{S}$, S being the section of the river.

Therefore let a be the height of the weir from the bottom of the river, and h the height of the water above the edge of the weir. We have the velocity with which the water approaches the weir $= \frac{D}{l\,(a+h)}$, l being the length of the weir or breadth of the river. Therefore the height producing the primary mean velocity is $\left(\frac{D}{l\sqrt{2g}\,(a+h)}\right)^2$. The equation given a little ago will give $h = \left(\frac{D}{0{,}431\,l\sqrt{2\,G}}\right)^{\frac{2}{3}}$, when the water above the weir is stagnant. Therefore, when it is already moving with the velocity $\frac{D}{la+h}$, we shall have $h = \left(\frac{D}{0{,}431\,\sqrt{2\,G}}\right)^{\frac{2}{3}} - \left(\frac{D}{l\sqrt{2g}\,(a+h)}\right)^2$. It would be very troublesome to solve this equation regularly, because the unknown quantity h is found in the second term of the answer. But we know that the height producing the velocity above the weir is very small in comparison of h and of a, and, if only estimated roughly, will make a very insensible change in the value of h; and, by repeating the operation, we can correct this value, and obtain h to any degree of exactness.

To illustrate this by an example. Suppose a river, the section of whose stream is 150 feet, and that it discharges 174 cubic feet of water in a second; how much will the waters of this river be raised by a weir of the same width, and 3 feet high?

Suppose the width to be 50 feet. This will give 3 feet for the depth; and we see that the water will have a clear fall, because the lower stream will be the same as before.

The section being 150 feet, and the discharge 174, the mean velocity is $\frac{174}{150}$, $= 1{,}16$ feet, $= 14$ inches nearly, which requires the height of $\frac{1}{4}$ of an inch very nearly. This may be taken for the second term of the value of h. Therefore $h = \left(\frac{D}{0{,}431\sqrt{2G}\,l}\right)^{\frac{2}{3}} - \frac{1}{4}$. Now $\sqrt{2\,G}$ is, in the present case, $= 27{,}313$; l is 600, and D is 174×1728, $= 300672$. Therefore $h = 12{,}192 - 0{,}25$, $= 11{,}942$. Now correct this value of h, by correcting the second term, which is $\frac{1}{4}$ of an inch, instead of $\left(\frac{D}{\sqrt{2g}\,l\,(a+h)}\right)^2$, or $0{,}141$. This will give us $h = 12{,}192 - 0{,}141$, $= 12{,}051$, differing from the first value about $\frac{1}{10}$ of an inch. It is needless to carry the approximation farther. Thus we see that a weir, which dams up the whole of the former current of three feet deep, will only raise the waters of this river one foot.

The same rule serves for showing how high we ought to raise this weir in order to produce *any given rise* of the waters, whether for the purposes of navigation, or for taking off a draft to drive mills, or for any other service; for if the breadth of the river remain the same, the water will still flow over the weir with nearly the same depth. A very small and hardly perceptible difference will indeed arise from the diminution of slope occasioned by this rise, and a consequent diminution of the velocity with which the river approaches the weir. But this difference must always be a small fraction of the second term of our answer; which term is itself very small: and even this will be compensated, in some degree, by the freer fall which the water will have over the weir.

If the intended weir is not to have the whole breadth of the river (which is seldom necessary even for the purposes of navigation), the waters will be raised higher by the same height of the wasteboard. The calculation is precisely the same for this case. Only in the second term, which gives the head of water corresponding to the velocity of the river, l must still be taken for the whole breadth of the river, while in the first term l is the length of the wasteboard. Also $\sqrt{2\,G}$ must be a little less, on account of the contractions at the ends of the weir, unless these be avoided by giving the masonry at the ends of the wasteboard a curved shape on the upper side of the wasteboard. This should not be done when the sole object of the weir is to raise the surface of the waters. Its effect is but trifling at any rate, when the length of the wasteboard is considerable, in proportion to the thickness of the sheet of water flowing over it.

The following comparisons of this rule with experiment will give our readers some notion of its utility.

Discharge of the Weir per Second	Head producing the velocity at the Weir.	Head producing the Velocity above it	Calculated Height of the River above the Wasteboard	Observed Height
Inches	*Inches.*	*Inches*	*Inches.*	*Inches.*
3888	7,302	0,625	6,677	6,583
2462	5,385	0,350	5,035	4,750
1112	3,171	0,116	3,055	3,166
259	1,201	0,0114	1,189	1,250

It was found extremely difficult to measure the exact height of the water in the upper stream above the wasteboard. The curvature A I extended several feet up the stream. Indeed there must be something arbitrary in this measurement, because the surface of the stream is not horizontal. The deviation should be taken, not from a horizontal plane, but from the inclined surface of the river.

It is plain that a river cannot be fitted for continued navigation by WEIRS. These occasion interruptions; but a few inches may sometimes be added to the waters of a river by a BAR, which may still allow a flat-bottomed lighter or a raft to pass over it. This is a very frequent practice in Holland and Flanders; and a very cheap

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cheap and certain conveyance of goods is there obtained by means of ſtreams which we would think no better than boundary ditches, and unfit for every purpoſe of this kind. By means of a bar the water is kept up a very few inches, and the ſtream has free courſe to the ſea. The ſhoot over the bar is prevented by means of another bar placed a little way below it, lying flat in the bottom of the ditch, but which may be raiſed up on hinges. The lighterman makes his boat faſt to a ſtake immediately above the bar, raiſes the lower bar, brings over his boat, again makes it faſt, and, having laid down the other bar again, proceeds on his journey. This contrivance anſwers the end of a lock at a very trifling expence; and though it does not admit of what we are accuſtomed to call navigation, it gives a very ſure conveyance, which would otherwiſe be impoſſible. When the waters can be raiſed by bars, ſo that they may be drawn off for machinery or other purpoſes, they are preferable to weirs, becauſe they do not obſtruct floating with rafts, and are not deſtroyed by the ice.

Prob. III. Given the height of a bar, the depth of water both above and below it, and the width of the river, to determine the diſcharge?

This is by no means ſo eaſily ſolved as the diſcharge over a weir, and we cannot do it with the ſame degree of evidence. We imagine, however, that the following obſervations will not be very far from a true account of the matter.

We may firſt ſuppoſe a reſervoir LFBM (fig. 19.) of ſtagnant water, and that it has a waſteboard of the height CB. We may then determine, by the foregoing problems, the diſcharge through the plane EC. With reſpect to the diſcharge through the part CA, it ſhould be equal to this product of the part of the ſection by the velocity correſponding to the fall EC, which is the difference of the heights of water above and below the bar; for, becauſe the difference of E a and C a is equal to E C, every particle a of water in the plane CA is preſſed in the direction of this ſtream with the ſame force, *viz.* the weight of the column E C. The ſum of theſe diſcharges ſhould be the whole diſcharge over the bar; but ſince the bar is ſet up acroſs a running river, its diſcharge muſt be the ſame with that of the river. The water of the river, when it comes to the place of the bar, has acquired ſome velocity by its ſlope or other cauſes, and this correſponds to ſome height F E. This velocity, multiplied by the ſection of the river, having the height E B, ſhould give a diſcharge equal to the diſcharge over the bar.

To avoid this complication of conditions, we may firſt compute the diſcharge of the bar in the manner now pointed out, without the conſideration of the previous velocity of the ſtream. This diſcharge will be a little too ſmall. If we divide it by the ſection F B, it will give a primary velocity too ſmall, but not far from the truth. Therefore we ſhall get the height F E, by means of which we ſhall be able to determine a velocity intermediate between D G and C H, which would correſpond to a weir, as alſo the velocity C H, which correſponds to the part of the ſection C A, which is wholly under water. Then we correct all theſe quantities by repeating the operation with them inſtead of our firſt aſſumptions.

Mr Buat found this computation extremely near the truth, but in all caſes a little greater than obſervation exhibited.

We may now ſolve the problem in the moſt general terms.

Prob. IV. Given the breadth, depth, and the ſlope of a river, if we confine its paſſage by a bar or weir of a known height and width, to determine the riſe of the waters above the bar.

The ſlope and dimenſions of the channel being given, our formula will give us the velocity and the quantity of water diſcharged. Then, by the preceding problem, find the height of water above the waſteboard. From the ſum of theſe two heights deduct the ordinary depth of the river. The remainder is the riſe of the waters. For example:

Let there be a river whoſe ordinary depth is 3 feet, and breadth 40, and whoſe ſlope is $1\frac{1}{2}$ inches in 100 fathoms, or $\frac{1}{4800}$. Suppoſe a weir on this river 6 feet high and 18 feet wide.

We muſt firſt find the velocity and diſcharge of the river in its natural ſtate, we have $l = 480$ inches, $h = 36$, $\frac{1}{s} = \frac{1}{4800}$. Our formula of uniform motion gives $V = 23{,}45$, and $D = 405216$ cubic inches.

The contraction obtains here on the three ſides of the orifice. We may therefore take $\sqrt{2G} = 26{,}1$.—*N. B.* This example is Mr Buat's, and all the meaſures are French. We have alſo a (the height of the weir) 72, and $2g = 724$. Therefore the equation $h = \left(\frac{D}{,431\sqrt{2Gl}}\right)^{\frac{2}{3}} - \left(\frac{D}{l\sqrt{\frac{2}{s}(a+h)}}\right)^2$ becomes 30,182. Add this to the height of the weir, and the depth of the river above the ſluice is 102,182, = 8 feet and 6,182 inches. From this take 3 feet, and there remains 5 feet and 6,182 inches for the riſe of the waters.

There is, however, an important circumſtance in this riſe of the waters, which muſt be diſtinctly underſtood before we can ſay what are the intereſting effects of this weir. This ſwell extends, as we all know, to a conſiderable diſtance up the ſtream, but is leſs ſenſible as we go away from the weir. What is the diſtance to which the ſwell extends, and what increaſe does it produce in the depth at different diſtances from the weir?

If we ſuppoſe that the ſlope and the breadth of the channel remain as before, it is plain, that as we come down the ſtream from that point where the ſwell is inſenſible, the depth of the channel increaſes all the way to the dam. Therefore, as the ſame quantity of water paſſes through every ſection of the river, the velocity muſt diminiſh in the ſame proportion (very nearly) that the ſection increaſes. But this being an open ſtream, and therefore the velocity being inſeparably connected with the ſlope of the ſurface, it follows, that the ſlope of the ſurface muſt diminiſh all the way from that point where the ſwell of the water is inſenſible to the dam. The ſurface, therefore, cannot be a ſimple inclined plane, but muſt be concave upwards, as repreſented in fig. 20. where FKLB repreſents the channel of a river, and FB the ſurface of the water running in it. If this be kept up to A by a weir AL, the ſurface will be a curve FIA, touching the natural ſurface F at the beginning of the ſwell, and the line AD which touches it in A will have the ſlope S correſponding to the velocity which the waters have immediately before going over the weir. We know this ſlope, becauſe we

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are ſuppoſed to know the diſcharge of the river and its ſlope and other circumſtances before barring it with a dam; and we know the height of the dam H, and therefore the new velocity at A, or immediately above A, and conſequently the ſlope S. Therefore, drawing the horizontal lines DC, AG, it is plain that CB and CA will be the primary ſlope of the river, and the ſlope S correſponding to the velocity in the immediate neighbourhood of A, becauſe theſe verticals have the ſame horizontal diſtance DC. We have therefore CB : CA $= S : s$ very nearly, and $S - s : s = CB - CA : CA$, $= AB$ (nearly) : CA. Therefore $CA = \frac{AB \times s}{S - s}, = \frac{Hs}{S - s}$. But $DA = CA \times S$, by our definition of ſlope; therefore $DA = \frac{H.S.s}{S - s}$.

This is all that we can ſay with preciſion of this curve. Mr Buat examined what would reſult from ſuppoſing it an arch of a circle. In this caſe we ſhould have DA=DF, and AF very nearly equal to 2 AD: and as we can thus find AD, we get the whole length FIA of the ſwell, and alſo the diſtances of any part of the curve from the primitive ſurface FB of the river; for theſe will be very nearly in the duplicate proportion of their diſtances from F. Thus ID will be $\frac{1}{3}$ of AB, &c. Therefore we ſhould obtain the depth I *d* of the ſtream in that place. Getting the depth of the ſtream, and knowing the diſcharge, we get the velocity, and can compare this with the ſlope of the ſurface at I. This ſhould be the ſlope of that part of the arch of the circle. Making this compariſon, he found theſe circumſtances to be incompatible. He found that the ſection and ſwell at I, correſponding to an arch of a circle, gave a diſcharge nearly $\frac{1}{5}$th too great (they were as 405216 to 492142). Therefore the curve is ſuch, that AD is greater than DF, and that it is more incurvated at F than at A. He found, that making DA to DF as 10 to 9, and the curve FIA an arch of an ellipſe whoſe longer axis was vertical, would give a very nice correſpondence of the ſections, velocities, and ſlopes. The whole extent of the ſwell therefore can never be double of AD, and muſt always greatly ſurpaſs AD; and theſe limits will do very well for every practical queſtion. Therefore making DF $\frac{9}{10}$ of AD, and drawing the chord AD, and making DI $\frac{1}{3}$ of D *i*, we ſhall be very near the truth. Then we get the ſwell with ſufficient preciſion for any point H between F and D, by making $FD^2 : FH^2 = ID : H\,h$; and if H is between D and A, we get its diſtance from the tangent DA by a ſimilar proceſs.

It only remains to determine the ſwell produced in the waters of a river by the erection of a bridge or cleaning ſluice which contracts the paſſage. This requires the ſolution of

Prob. V. Given the depth, breadth, and ſlope of a river, to determine the ſwell occaſioned by the piers of a bridge or ſides of a cleaning ſluice, which contract the paſſage by a given quantity, for a given length of channel.

This ſwell depends on two circumſtances.

1. The whole river muſt paſs through a narrow ſpace, with a velocity proportionably increaſed; and this requires a certain head of water above the bridge.

2. The water, in paſſing the length of the piers with a velocity greater than that correſponding to the primary ſlope of the river, will require a greater ſlope in order to acquire this velocity.

Let V be the velocity of the river before the erection of the bridge, and K the quotient of the width of the river divided by the ſum of the widths between the piers. If the length of the piers, or their dimenſion in the direction of the ſtream, is not very great, KV will nearly expreſs the velocity of the river under the arches; and if we ſuppoſe for a moment the contraction (in the ſenſe hitherto uſed) to be nothing, the height producing this velocity will be $\frac{K^2 V^2}{2g}$. But the river will not riſe ſo high, having already a ſlope and velocity before getting under the arches, and the height correſponding to this velocity is $\frac{V^2}{2g}$; therefore the height for producing the augmentation of velocity is $\frac{K^2 V^2}{2g} - \frac{V^2}{2g}$. But if we make allowance for contraction, we muſt employ a 2 G leſs than $2g$, and we muſt multiply the height now found by $\frac{2g}{2G}$. It will then become $\left(\frac{K^2 V^2}{2g} - \frac{V^2}{2g}\right)\frac{2g}{2G}, = \frac{V^2}{2G}(K^2 - 1)$. This is that part of the ſwell which muſt produce the augmentation of velocity.

With reſpect to what is neceſſary for producing the additional ſlope between the piers, let p be the natural ſlope of the river (or rather the difference of level in the length of the piers) before the erection of the bridge, and correſponding to the velocity V; $K^2 p$ will very nearly expreſs the difference of ſuperficial level for the length of the piers, which is neceſſary for maintaining the velocity KV through the ſame length. The *increaſe* of ſlope therefore is $K^2 p - p = p(K^2 - 1)$. Therefore the whole ſwell will be $\left(\frac{V^2}{2G} + p\right)\overline{K^2 - 1}$.

109 Further attention to the ſubject recommended.

These are the chief queſtions or problems on this ſubject which occur in the practice of an engineer; and the ſolutions which we have given may in every caſe be depended on as very near the truth, and we are confident that the errors will never amount to one-fifth of the whole quantity. We are equally certain, that of thoſe who call themſelves engineers, and who, without heſitation, undertake jobs of enormous expence, not one in ten is able even to gueſs at the reſult of ſuch operations, unleſs the circumſtances of the caſe happen to coincide with thoſe of ſome other project which he has executed, or has diſtinctly examined; and very few have the ſagacity and penetration neceſſary for appreciating the effects of the diſtinguiſhing circumſtances which yet remain. The ſociety eſtabliſhed for the encouragement of arts and manufactures could ſcarcely do a more important ſervice to the public in the line of their inſtitution, than by publiſhing in their Tranſactions a deſcription of every work of this kind executed in the kingdom, with an account of its performance. This would be a moſt valuable collection of experiments and facts. The unlearned practitioner would find among them ſomething which reſembles in its chief circumſtances almoſt any project which could occur to him in his

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his business, and would tell him what to expect in the case under his management: and the intelligent engineer, assisted by mathematical knowledge, and the habit of classing things together, would frequently be able to frame general rules. To a gentleman qualified as was the Chevalier de Buat, such a collection would be inestimable, and might suggest a theory as far superior to his as he has gone before all other writers.

110 Rules of making small rivers and brooks fit for inland navigation.

We shall conclude this article with some observations on the methods which may be taken for rendering small rivers and brooks fit for inland navigation, or at least for floatage. We get much instruction on this subject from what has been said concerning the swell produced in a river by weirs, bars, or any diminution of its former section. Our knowledge of the form which the surface of this swell affects, will furnish rules for spacing these obstructions in such a manner, and at such distances from each other, that the swell produced by one shall extend to the one above it.

If we know the slope, the breadth, and the depth of a river, in the droughts of summer, and have determined on the height of the flood-gates, or keeps, which are to be set up in its bed, it is evident that their stations are not matters of arbitrary choice, if we would derive the greatest possible advantage from them.

Some rivers in Flanders and Italy are made navigable in some sort by simple sluices, which, being shut, form magazines of water, which, being discharged by opening the gates, raises the inferior reach enough to permit the passage of the craft which are kept on it. After this momentary rise the keeps are shut again, the water sinks in the lower reach, and the lighters which were floated through the shallows are now obliged to draw into those parts of the reach where they can lie afloat till the next supply of water from above enables them to proceed. This is a very rude and imperfect method, and unjustifiable at this day, when we know the effect of locks, or at least of double gates. We do not mean to enter on the consideration of these contrivances, and to give the methods of their construction, in this place, but refer our readers to what has been already said on this subject in the articles Canal, Lock, Navigation *(Inland)*, and to what will be said in the article *Water-Works*. At present we confine ourselves to the single point of husbanding the different falls in the bed of the river, in such a manner that there may be everywhere a sufficient depth of water: and, in what we have to deliver on the subject, we shall take the form of an example to illustrate the application of the foregoing rules.

Suppose then a river 40 feet wide and 3 feet deep in the droughts of summer, with a slope of 1 in 4800. This, by the formula of uniform motion, will have a velocity $V = 23\frac{1}{2}$ inches per second, and its discharge will be 405216 cubic inches, or $234\frac{1}{2}$ feet. It is proposed to give this river a depth not less than five feet in any place, by means of flood-gates of six feet high and 18 feet wide.

We first compute the height at which this body of $234\frac{1}{2}$ cubic feet of water will discharge itself over the flood-gates. This we shall find by Prob. II. to be $30\frac{1}{4}$ inches, to which adding 72, the height of the gate, we have $102\frac{1}{4}$ for the whole height of the water above the floor of the gate; the primitive depth of the river being 3 feet, the rise or swell 5 feet $6\frac{1}{4}$ inches. In the next place, we find the range or sensible extent of this swell by Prob. I. and the observations which accompany it. This will be found to be nearly 9177 fathoms. Now since the primitive depth of the river is three feet, there is only wanted two feet of addition; and the question is reduced to the finding what point of the curved surface of the swell is two feet above the tangent plane at the head of the swell? or how far this point is from the gate? The whole extent being 9177 fathoms, and the deviations from the tangent plane being nearly in the duplicate ratio of the distances from the point of contact, we may institute this proportion $66\frac{1}{2} : 24 = 9177^2 : 5526^2$. The last term is the distance (from the head of the swell) of that part of the surface which is two feet above the primitive surface of the river. Therefore 9177—5526, or 3651 fathoms, is the distance of this part from the flood-gate; and this is the distance at which the gates should be placed from each other. No inconvenience would arise from having them nearer, if the banks be high enough to contain the waters; but if they are farther distant, the required depth of water cannot be had without increasing the height of the gates; but if reasons of conveniency should induce us to place them nearer, the same depth may be secured by lower gates, and no additional height will be required for the banks. This is generally a matter of moment, because the raising the water brings along with it the chance of flooding the adjoining fields. Knowing the place where the swell ceases to be sensible, we can keep the top of the intermediate flood-gate at the precise height of the curved surface of the swell by means of the proportionality of the deviations from the tangent to the distances from the point of contact.

But this rule will not do for a gate which is at a greater distance from the one above it than the 3651 fathoms already mentioned. We know that a higher gate is required, producing a more extensive swell; and the one swell does not coincide with the other, although they may both begin from the same point A (fig. 21.(Nor will the curves even be similar, unless the thickness of the sheet of water flowing over the gate be increased in the same ratio. But this is not the case; because the produce of the river, and therefore the thickness of the sheet of water, is constant.

But we may suppose them similar without erring more than two or three decimals of an inch; and then we shall have $AF : AL = \sqrt{F : DL}$; from which, if we take the thickness of the sheet of water already calculated for the other gates, there will remain the height of the gate BL.

By following these methods, instead of proceeding by random guesses, we shall procure the greatest depth of water at the smallest expence possible.

111 Effects of freshes.

But there is a circumstance which must be attended to, and which, if neglected, may in a short time render all our works useless. These gates must frequently be open in the time of freshes; and as this channel then has its natural slope increased in every reach by the great contraction of the section in the gates, and also rolls along a greater body of water, the action of the stream on its bed must be increased by the augmentation of velocity which these circumstances will produce: and

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and although we may say that the general slope is necessarily secured by the cills of the flood-gates, which are paved with stone or covered with planks, yet this will not hinder this increased current from digging up the bottom in the intervals, undermining the banks, and lodging the mud and earth thus carried off in places where the current meets with any check. All these consequences will assuredly follow if the increased velocity is greater than what corresponds to the regimen relative to the soil in which the river holds on its course.

112 And of local circumstances,

In order therefore to procure durability to works of this kind, which are generally of enormous expence, the local circumstances must be most scrupulously studied. It is not the ordinary hurried survey of an engineer that will free us from the risk of our navigation becoming very troublesome by the rise of the waters being diminished from their former quantity, and banks formed at a small distance below every sluice. We must attentively study the nature of the soil, and discover experimentally the velocity which is not inconsistent with the permanency of the channel. If this be not a great deal less than that of the river when accelerated by freshes, the regimen may be preserved after the establishment of the gate, and no great changes in the channel will be necessary: but if, on the other hand, the natural velocity of the river during its freshes greatly exceeds what is consistent with stability, we must enlarge the width of the channel, that we may diminish the hydraulic mean depth, and along with this the velocity. Therefore, knowing the quantity discharged during the freshes, divide it by the velocity of regimen, or rather by a velocity somewhat greater (for a reason which will appear by and by), the quotient will be the area of a new section. Then taking the natural slope of the river for the slope which it will preserve in this enlarged channel, and after the cills of the flood-gates have been fixed, we must calculate the hydraulic mean depth, and then the other dimensions of the channel. And, lastly, from the known dimensions of the channel and the discharge (which we must now compute), we proceed to calculate the height and the distances of the flood-gates, adjusted to their widths, which must be regulated by the room which may be thought proper for the free passage of the lighters which are to ply on the river. An example will illustrate the whole of this process.

113 Illustrated by an example.

Suppose then a small river having a slope of 2 inches in 100 fathoms or $\frac{1}{7200}$, which is a very usual declivity of such small streams, and whose depth in summer is 2 feet, but subject to floods which raise it to nine feet. Let its breadth at the bottom be 18 feet, and the base of its slanting sides $\frac{4}{3}$ of their height. All of these dimensions are very conformable to the ordinary course of things. It is proposed to make this river navigable in all seasons by means of keeps and gates placed at proper distances; and we want to know the dimensions of a channel which will be permanent, in a soil which begins to yield to a velocity of 80 inches per second, but will be safe under a velocity of 24.

The primitive channel having the properties of a rectangular channel, its breadth during the freshes must be B = 30 feet, or 360 inches, and its depth h 9 feet or 108 inches; therefore its hydraulic mean depth $d = \frac{Bh}{B+2h} = 61{,}88$ inches. Its real velocity therefore, during the freshes, will be 38,9447 inches, and its discharge 1514109 cubic inches, or $876\frac{1}{2}$ cubic feet per second. We see therefore that the natural channel will not be permanent, and will be very quickly destroyed or changed by this great velocity. We have two methods for procuring stability, viz. diminishing the slope, or widening the bed. The first method will require the course to be lengthened in the proportion of 24^2 to 3988^2, or nearly of 36 to 100. The expence of this would be enormous. The second method will require the hydraulic mean depth to be increased nearly in the same proportion (because the velocities are nearly as $\frac{\sqrt{d}}{\sqrt{s}}$). This will evidently be much less costly, and, even to procure convenient room for the navigation, must be preferred.

We must now observe, that the great velocity, of which we are afraid, obtains only during the winter floods. If therefore we reduce this to 24 inches, it must happen that the autumnal freshes, loaded with sand and mud, will certainly deposit a part of it, and choak up our channel below the flood-gates. We must therefore select a mean velocity somewhat exceeding the regimen, that it may carry off these depositions. We shall take 27 inches, which will produce this effect on the loose mud without endangering our channel in any remarkable degree.

Therefore we have, by the theorem for uniform motion, $V = 27, = \frac{297(\sqrt{d}-0{,}1)}{\sqrt{s}-L\sqrt{s+1{,}6}} - 0{,}3(\sqrt{s}-0{,}1)$. Calculating the divisor of this formula, we find it $= 55{,}884$. Hence $\sqrt{d} - 0{,}1 = \frac{27 \text{ inch.}}{\frac{297}{55{,}884} - 0{,}3} =$ 5,3843, and therefore $d = 30\frac{1}{14}$. Having thus determined the hydraulic mean depth, we find the area S of the section by dividing the discharge 1514169 by the velocity 27. This gives us 56080,368. Then we get the breadth B by the formula formerly given, $B = \sqrt{\left(\frac{S}{2d}\right)^2 - 2S} + \frac{S}{2d}, = 1802{,}296$ inches, or 150,19 feet, and the depth $h = 31{,}115$ inches.

With these dimensions of the section we are certain that the channel will be permanent; and the cills of the flood-gates being all fixed agreeable to the primitive slope, we need not fear that it will be changed in the intervals by the action of the current. The gates being all open during the freshes, the bottom will be cleared of all deposited mud.

114 Station of the flood-gates, &c.

We must now station the flood-gates along the new channel, at such distances that we may have the depth of water which is proper for the lighters that are to be employed in the navigation. Suppose this to be four feet. We must first of all learn how high the water will be kept in this new channel during the summer droughts. There remained in the primitive channel only 2 feet, and the section in this case had 20 feet 8 inches mean width; and the discharge corresponding to this section and slope of $\frac{1}{7200}$ is, by the theorem of uniform motion, 130,849 cubic inches per second. To find

al es. find the depth of water in the new channel correſponding to this diſcharge, and the ſame ſlope, we muſt take the method of approximation formerly exemplified, remembering that the diſcharge D is 130049, and the breadth B is 1760,8 at the bottom (the ſlant ſides being $\frac{4}{3}$). Theſe data will produce a depth of water $= 6\frac{1}{7}$ inches. To obtain four feet therefore behind any of the flood-gates, we muſt have a ſwell of $41\frac{1}{3}$ inches produced by the gate below.

We muſt now determine the width of paſſage which muſt be given at the gates. This will regulate the thickneſs of the ſheet of water which flows over them when ſhut; and this, with the height of the gate, fixes the ſwell at the gate. The extent of this ſwell, and the elevation of every point of its curved ſurface above the new ſurface of the river, requires a combination of the height of ſwell at the flood-gate, with the primitive ſlope and the new velocity. Theſe being computed, the ſtations of the gates may be aſſigned, which will ſecure four feet of water behind each in ſummer. We need not give theſe computations, having already exemplified them all with relation to another river.

This example not only illuſtrates the method of proceeding, ſo as to be enſured of ſucceſs, but alſo gives us a preciſe inſtance of what muſt be done in a caſe which cannot but frequently occur. We ſee what a prodigious excavation is neceſſary, in order to obtain permanency. We have been obliged to enlarge the primitive bed to about thrice its former ſize, ſo that the excavation is at leaſt two-thirds of what the other method required. The expence, however, will ſtill be vaſtly inferior to the other, both from the nature of the work and the quantity of ground occupied. At all events, the expence is enormous, and what could never be repaid by the navigation, except in a very rich and populous country.

There is another circumſtance to be attended to.—The navigation of this river by ſluices muſt be very deſultory, unleſs they are extremely numerous, and of ſmall heights. The natural ſurface of the ſwell being concave upwards, the additions made by its different parts to the primitive height of the river decreaſe rapidly as they approach to the place A (fig. 20), where the ſwell terminates; and three gates, each of which raiſes the water one foot when placed at the proper diſtance from each other, will raiſe the water much more than two gates at twice this diſtance, each raiſing the water two feet. Moreover, when the elevation produced by a flood-gate is conſiderable, exceeding a very few inches, the fall and current produced by the opening of the gate is ſuch, that no boat can poſſibly paſs up the river, and it runs imminent riſk of being overſet and ſunk, in the attempt to go down the ſtream. This renders the navigation deſultory. A number of lighters collect themſelves at the gates, and wait their opening. They paſs through as ſoon as the current becomes moderate. This would not, perhaps, be very hurtful in a regulated navigation, if they could then proceed on their voyage. But the boats bound up the river muſt ſtay on the upper ſide of the gate which they have juſt now paſſed, becauſe the channel is now too ſhallow for them to proceed. Thoſe bound down the river can only go to the next gate, unleſs it has been opened at a time nicely adjuſted to the opening of the one above it. The paſſage downwards *may*, in many caſes, be continued, by very intelligent and attentive lockmen, but the paſſage up *muſt* be exceedingly tedious. Nay, we may ſay, that *while* the paſſage downwards is continuous, it is but in a very few caſes that the paſſage upward is practicable. If we add to theſe inconveniences the great danger of paſſage during the freſhes, while all the gates are open, and the immenſe and unavoidable accumulations of ice, on occaſion even of ſlight froſts, we may ſee that this method of procuring an inland navigation is amazingly expenſive, deſultory, tedious, and hazardous. It did not therefore merit, on its own account, the attention we have beſtowed on it. But the diſcuſſion was abſolutely neceſſary, in order to ſhow what muſt be done in order to obtain effect and permanency, and thus to prevent us from engaging in a project which, to a perſon not duly and confidently informed, is ſo feaſible and promiſing. Many profeſſional engineers are ready, and with honeſt intentions, to undertake ſuch taſks; and by avoiding this immenſe expence, and contenting themſelves with a much narrower channel, they ſucceed, (witneſs the old navigation of the river Merſey). But the work has no duration; and, not having been found very ſerviceable, its ceſſation is not matter of much regret. The work is not much ſpoken of during its continuance. It is ſoon forgotten, as well as its failure, and engineers are found ready to engage for ſuch another.

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115 Introduction of locks.

It was not a very refined thought to change this imperfect mode for another free from moſt of its inconveniences. A boat was brought up the river, through one of theſe gates, only by raiſing the waters of the inferior reach, and depreſſing thoſe of the upper: and it could not eſcape obſervation, that when the gates were far aſunder, a vaſt body of water muſt be diſcharged before this could be done, and that it would be a great improvement to double each gate, with a very ſmall diſtance between. Thus a very ſmall quantity of water would fill the interval to the deſired height, and allow the boat to come through; and this thought was the more obvious, from a ſimilar practice having preceded it, *viz.* that of navigating a ſmall river by means of double bars, the loweſt of which lay flat in the bottom of the river, but could be raiſed up on hinges. We have mentioned this already; and it appears to have been an old practice, being mentioned by Stevinus in his valuable work on ſluices, publiſhed about the beginning of the laſt century; yet no trace of this method is to be found of much older dates. It occurred, however, accidentally, pretty often in the flat countries of Holland and Flanders, which being the ſeat of frequent wars, almoſt every town and village was fortified with wet ditches, connected with the adjoining rivers. Stevinus mention particularly the works of Condé, as having been long employed, with great ingenuity, for rendering navigable a very long ſtretch of the Scheldt. The boats were received into the lower part of the foſſee, which was ſeparated from the reſt by a ſtone batardeau, ſerving to keep up the waters in the reſt of the foſſee about eight feet. In this was a ſluice and another dam, by which the boats could be taken into the upper foſſee, which communicated with a remote part of the Scheldt by a long canal. This appears to be one of the earlieſt locks.

In the firſt attempt to introduce this improvement in the

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the navigation of rivers already kept up by weirs, which gave a partial and interrupted navigation, it was usual to avoid the great expence of the second dam and gate, by making the lock altogether detached from the river, within land, and having its baton parallel to the river, and communicating by one end with the river above the weir, and by the other end with the river below the weir, and having a flood-gate at each end.—This was a most ingenious thought; and it was a prodigious improvement, free from all the inconveniences of currents, ice, &c. &c. It was called a *Schlussel*, or lock, with considerable propriety; and this was the origin of the word *sluice*, and of our application of its translation *lock*. This practice being once introduced, it was not long before engineers found that a complete separation of the navigation from the bed of the river was not only the most perfect method for obtaining a sure, easy, and uninterrupted navigation, but that it was in general the most œconomical in its first construction, and subject to no risk of deterioration by the action of the current, which was here entirely removed. Locked canals, therefore, have almost entirely supplanted all attempts to improve the natural beds of rivers; and this is hardly ever attempted except in the flat countries, where they can hardly be said to differ from horizontal canals. We therefore close with these observations this article, and reserve what is yet to be said on the construction of canals and locks for the article *Water-Works*.

716 Concluding observations to the reader.

We beg leave, however, to detain the reader for a few moments. He cannot but have observed our anxiety to render this dissertation worthy of his notice, by making it practically useful. We have on every occasion appealed, from all theoretical deductions, however specious and well supported, to fact and observation of those spontaneous phenomena of nature which are continually passing in review before us in the motion of running waters. Resting in this manner our whole doctrines on experiment, on the observation of what really happens, and what happens in a way which we cannot or do not fully explain, these spontaneous operations of nature came insensibly to acquire a particular value in our imagination. It has also happened in the course of our reflections on these subjects, that these phenomena have frequently presented themselves to our view in groups, not less remarkable for the extent and the importance of their consequences than for the simplicity, and frequently the seeming insignificancy, nay frivolity, of the means employed. Our fancy has therefore been sometimes warmed with the view of a something; an

Ens agitans molem, et magno se corpore miscens.

This has sometimes made us express ourselves in a way that is susceptible of misinterpretation, and may even lead into a mistake of our meaning.

We therefore find ourselves obliged to declare, that by the term Nature, which we have so frequently used *ens amens*, we do not mean that indescribable idol which the self-conceit and vanity of our neighbours in France have set up of late, and ostentatiously stand on tiptoe to worship. This *ens rationis*, this creature of the imagination, has long been the object of cool contemplation in the closet of the philosopher, and has shared his attention with many other play-things of his ever-working fancy. But she has now become the object of a sincere and fond idolatry, being held forth by her zealous high-priests to the refined vanity of man as a sort of mirror, in which he may behold his own cherished features, and admire a beauty of his own composition, painted with the most delicate glow of humanity, and decked out with every ornament with which the courtly fancies of a Voltaire, a Diderot, a Mirabeau, could contrive, to smooth over or to hide all traces of created imperfection. We leave this idol to the worship of her intoxicated and unfortunate votaries. The solemn farce in the church of Notre Dame at Paris was an adoration every way worthy of the Divinity; and our horror in reading the description of the ceremonial was not without some allay of pleasure, when we saw among her most active priests an artist, whom we had seen a few years before the *machiniste de l'opera* at St Petersburgh, and grand-master of the lodge *des Mousses*. We hope to be forgiven the pun, when we say that the ancient fabric which was that day profaned by the *abomination of desolation*, was then in reality the *temple de Notre Dame*. Mr Brigonzi was, by his profession, a fit successor in the priesthood to those *sages de la France* (such was the appellation that they gave each other), whom we have just now named; and his *Tours de Theatre*, for which we have frequently admired his talents, were a very proper accompaniment to the finesse and ruse of these *soi-disant* philosophers, who, under the mask of the most refined humanity, habitually practised arts of dishonesty which would have ruined the character of the meanest pedlar. No one will think that we express ourselves too strongly who reflects on the many infamous tricks played by Voltaire to his booksellers. No one will think the charge too harsh, when he learns that Diderot, after having pretended to the possession of an immense library, and sold it to the empress of Russia for an enormous sum, had to ransack the warehouses of the booksellers of Paris and throughout all Germany, in order to fill his shelves. As for Mirabeau, he surpasses eulogy.

Most assiduous were those apostles in spreading this fanaticism, of which they enjoyed the courtly profits: and we imagine that the employment was as agreeable as it was lucrative; for we cannot suppose that Le Kain had more enjoyment, when fascinating his Parisian audience in the character of Voltaire's Mahomet, than its author felt in the side-box, when grinning to himself, and conscious what a sordid and envious wretch he was, he found himself crowned by the first actress, and worshipped by the audience as the apostle of philanthropy and universal benevolence.

Such was the worship, such were the priests, of this Gallic idol; and, like their predecessors the Druids, they have made human sacrifices a customary oblation at the shrine. We wonder at these things, and are surprised that any thing which can even be nicknamed *philosophy* can produce such effects. But the task of this apostleship was as easy as it was agreeable. It was not the work of a day; it was the completion of a studied corruption of principles, which is now above a century old. We may say that it began under the clever but infamous Dubois; who from being the valet de chambre of an infirm bishop, became cardinal, and sovereign of the Gallic church, and almost of the state. When objected to by the bigotted Louis XIV. (on a presentation for preferment) as a Jansenist, "*Oh qui non*," said the duke of Orleans, "*Oh, Sire, qui non, il n'est qu'athée.*"

qu'athee." He was at the utmoſt pains to bring into the court every man of eminent talents in gay literature, and of licentious principles in religion and morals, whom he employed in corrupting the minds of the young courtiers, and giving them favourable impreſſions of the indulgence which they might expect from him when he ſhould have the ſole direction of affairs. This ſyſtem was moſt aſſiduouſly purſued during that moſt licentious and diſſolute adminiſtration of the regent Orleans, who was himſelf a ſpecimen of elegant ſenſuality not to be matched in the annals of the world. Long before the preſent day, all thinking men in France ſaw the mummery of the church, and groaned under its oppreſſion; and having no other notions of religion but what they were accuſtomed to from their cradle, no wonder that they diſcarded the principle along with thoſe deteſtable acceſſories. The nation, therefore, being greedy of flattery, buoyed up by a ſelf-conceit, in which even the ancient Greeks have not ſurpaſſed them, and having been thus ſtudiouſly corrupted, and long immerſed in a luxurious and refined ſenſuality, of which we in this nation have not yet acquired an adequate idea, was fully prepared for feeling all the effects of this fanaticiſm of NATURALISM.

But this idolatry we abhor. It ſhocks our reaſon; and, although it may at firſt ſeem to flatter our thoughtleſs vanity, it really debaſes our nature, by taking from us our intellectual kindred to the mind of perfect wiſdom. Who would not feel pleaſure in being the relation of a Bacon, of a Newton, or would thank the man who detected the falſe pedigree? It puts an end to our fond hopes, that the day will come when we ſhall ſurpaſs in underſtanding, in worth, and in felicity, the wiſeſt, the beſt, and the moſt fortunate of our ſpecies.

We cannot but lament the appearances, however faint, of this fanaticiſm among ourſelves. We cannot but obſerve, that ſome of the hired directors of public opinion in matters of taſte and ſcience have of late ſhowed a wonderful tenderneſs for the bold and licentious opinions in religion, morals, and politics, which are daily pouring in upon us from the preſſes of Paris. Perhaps they may be incited to this conduct by the ſucceſs of their brother journaliſts in that profligate metropolis; and may hope to be one day, like them, the directors of the public councils and the ſovereigns of the nation. We truſt, however, that the better part of the reflecting natives of Britain will not allow themſelves to be ſneered out of their higheſt boaſt and their ſweeteſt comforts; namely, that they are not the chance fragments of a fatal chaos, but the beautiful productions of a wonderful Artiſt, and the darling objects of his care: and we aſſure ourſelves that ten thouſands of our countrymen are ready to rally under the banners of true religion and ſound philoſophy, and to follow the ſteps of a Clarke, a Butler, a Newton, and a Boyle, who ſo eminently diſtinguiſhed themſelves in the cauſe of Nature's God.

Practical Inferences.

By NATURE, then, we mean that admirable ſyſtem of general laws, by which the adored Author and Governor of the univerſe has thought fit to connect the various parts of this wonderful and goodly frame of things, and to regulate all their operations.

We are not afraid of continually appealing to the laws of nature; and as we have already obſerved in the article PHILOSOPHY, we conſider theſe general laws as the moſt magnificent diſplays of Infinite Wiſdom, and the contemplation of them as the moſt cheering employment of our underſtandings.

Igneus eſt illis vigor et cœleſtis origo
Seminibus.

At the ſame time we deſpiſe the cold-hearted philoſopher who ſtops ſhort here, and is ſatisfied (perhaps inwardly pleaſed) that he has completely accounted for every thing by the laws of unchanging nature; and we ſuſpect that this philoſopher would analyſe with the ſame frigid ingenuity, and explain by irreſiſtible ſοργη, the tender attachment of her whoſe breaſt he ſucked, and who by many anxious and ſleepleſs nights preſerved alive the puling infant. But let us rather liſten to the words of him who was the moſt ſagacious obſerver and the moſt faithful interpreter of nature's laws, our illuſtrious countryman Sir Iſaac Newton. He ſays,

"Elegantiſſima hæcce rerum compages non niſi conſilio et *dominio* entis ſapientiſſimi et potentiſſimi oriri potuit. Omnia, ſimili conſtructa conſilio, ſuberunt *unius* dominio. Hic omnia regit, non ut *anima mundi*, ſed ut univerſorum dominus. Propter dominium ſuum dominus deus, παντοκρατωρ nuncupatur. Deus ad ſervientes reſpicit, et *deitas* eſt dominatio dei, non in corpus proprium, uti ſentiunt quibus deus eſt natura ſeu anima mundi, ſed in ſervos. Deus ſummus eſt ens eternum, infinitum, abſolute perfectum. Ens utcunque perfectum, at ſine dominio, non eſt dominus deus.

"Hunc cognoſcimus, ſolummodo per proprietates ejus et attributa. Attribuuntur ut ex phenomenis dignoſcuntur. Phenomena ſunt ſapientiſſimæ et optimæ rerum ſtructuræ, atque cauſæ finales.—Hunc admiramur ob perfectiones; hunc veneramur et colimus ob dominium" (B).

Ri-

(B) Our readers will probably be pleaſed with the following liſt of authors who have treated profeſſedly of the motions of rivers: Guglielmini *De Fluviis et Caſtellis Aquarum—Danubius Illuſtratus;* Grandi *De Caſtellis;* Zendrini *De Motu Aquarum;* Friſius *de Fluviis;* Lecchi *Idroſtatica i Idraulica;* Michelotti *Sperienze Idrauliche;* Belidor's *Architecture Hydraulique;* Boſſut *Hydrodynamique;* Buat *Hydraulique;* Silberſchlag *Theorie des Fleuves;* Lettres de M. L'Epinaſſe *au P. Friſi touchant ſa Theorie des Fleuves;* Tableau des *principales Rivieres du Monde, par* Genetté; Stevins *ſur les Ecluſes;* Traité des Ecluſes, *par* Boulard, *qui a remporté le Prix de l'Acad. de Lyons;* Bleiſwyck *Diſſertatio de Aggeribus;* Boſſut *et* Viallet *ſur la Conſtruction des Digues;* Stevin *Hydroſtatica;* Tielman van der Horſt *Theatrum Machinarum Univerſale;* De la Lande *ſur les Canaux de Navigation;* Racolta di Autori *che Trattano del Moto dell' Acque*, 3 tom. 4to, Firenza 1723.—This moſt valuable collection contains the writings of Archimedes, Albizi, Galileo, Caſtelli, Michelini, Borelli, Montanari, Viviani, Caſſini, Guglielmini, Grandi, Manfredi, Picard, and Narduci; and an account of the numberleſs works which have been carried on in the embankment of the Po.

River. Road.

River-Water. This is generally much ſofter and better accommodated to economical purpoſes than ſpring-water. For though rivers proceed originally from ſprings, yet, by their rapid motion, and by being expoſed during a long courſe to the influence of the ſun and air, the earthy and metallic ſalts which they contain are decompoſed, the acid flies off, and the terreſtrial parts precipitate to the bottom. Rivers are alſo rendered ſofter by the vaſt quantity of rain-water, which, paſſing along the ſurface of the earth, is conveyed into their channels. But all rivers carry with them a great deal of mud and other impurities; and, when they flow near large and populous towns, they become impregnated with a number of heterogeneous ſubſtances, in which ſtate the water is certainly unfit for the purpoſes of life; yet, by remaining for ſome time at reſt, all the feculencies ſubſide, and the water becomes ſufficiently pure and potable.

RIVERS (Earl). See WODEVILE.

RIVINIA, in botany: A genus of the monogynia order, belonging to the tetrandria claſs of plants.—The perianth is four-leaved, coloured, and permanent, the leaflet oblong-egged and obtuſe; there is no corolla, unleſs the calyx be conſidered as ſuch. There are four or eight filaments, ſhorter than the calyx, approaching by pairs, permanent; the anthers are ſmall. The germ is large and roundiſh; the ſtyle very ſhort; the ſtigma ſimple and obtuſe. The berry is globular, ſitting on the green reflected calyx, one-celled with an incurved point. There is one ſeed, lenſform and rugged. This plant is called *Solanoides* by Tournefort, and *Piercea* by Miller. It grows naturally in moſt of the iſlands of the Weſt Indies. The juice of the berries of the plant will ſtain paper and linen of a bright red colour, and many experiments made with it to colour flowers have ſucceeded extremely well in the following manner: the juice of the berries was preſſed out, and mixed with common water, putting it into a phial, ſhaking it well together for ſome time, till the water was thoroughly tinged; then the flowers, which were white and juſt fully blown, were cut off, and their ſtalks placed into the phial; and in one night the flowers have been finely variegated with red; the flowers on which the experiments were made were the tuberoſe, and the double white narciſſus.

RIVULET, a diminutive of river. See RIVER.

ROACH, in ichthyology. See CYPRINUS.

ROAD, an open way, or public paſſage, forming a communication between one place and another.

Of all the people in the world the Romans took the moſt pains in forming roads; and the labour and expences they were at in rendering them ſpacious, firm, ſtraight, and ſmooth, are incredible. They uſually ſtrengthened the ground by ramming it, laying it with flints, pebbles, or ſands, and ſometimes with a lining of maſonry, rubbiſh, bricks, &c. bound together with mortar. In ſome places in the Lionois, F. Meneſtrier obſerves, that he has found huge cluſters of flints cemented with lime, reaching 10 or 12 feet deep, and making a maſs as hard and compact as marble; and which, after reſiſting the injuries of time for 1600 years, is ſcarce penetrable by all the force of hammers, mattocks, &c. and yet the flints it conſiſts of are not bigger than eggs. The moſt noble of the Roman roads was the Via Appia, which was carried to ſuch a vaſt length, that Procopius reckons it five days journey to the end of it, and Leipſius computes it at 350 miles: it is 12 feet broad, and made of ſquare free-ſtone generally a foot and a half on each ſide; and though this has laſted for above 1800 years, yet in many places it is for ſeveral miles together as entire as when it was firſt made.

The ancient roads are diſtinguiſhed into military roads, double roads, ſubterraneous roads, &c. The military roads were grand roads, formed by the Romans for marching their armies into the provinces of the empire; the principal of theſe Roman roads in England are Watling-ſtreet, Ikenild-ſtreet, Foſs-way, and Erminage-ſtreet. Double roads among the Romans, were roads for carriages, with two pavements, the one for thoſe going one way, and the other for thoſe returning the other: theſe were ſeparated from each other by a cauſeway raiſed in the middle, paved with bricks, for the conveniency of foot paſſengers; with borders and mounting ſtones from ſpace to ſpace, and military columns to mark the diſtance. Subterraneous roads are thoſe dug through a rock, and left vaulted; as that of Puzzuoli near Naples, which is near half a league long, and is 15 feet broad and as many high.

The firſt law enacted reſpecting highways and roads in England was in the year 1285; when the lords of the ſoil were enjoined to enlarge thoſe *ways* where buſhes, woods, or ditches be, in order to prevent robberies. The next law was made by Edward III. in the year 1346; when a commiſſion was granted by the king to lay a toll on all ſorts of carriages paſſing from the hoſpital of St Giles in the fields to the bar of the Old Temple, and alſo through another highway called *Portpool* (now Gray's Inn Lane) joined to the before-named highway; which roads were become almoſt impaſſable. Little further relating to this ſubject occurs, till the reign of Henry VIII. when the pariſhes were entruſted with the care of the roads, and ſurveyors were annually elected to take care of them. But the increaſe of luxury and commerce introduced ſuch a number of heavy carriages for the conveyance of goods, and lighter ones for the convenience and eaſe of travelling, that pariſh aid was found inſufficient to keep the beſt frequented roads in repair. This introduced toll-gates or turnpikes; that ſomething might be paid towards their ſupport by every individual who enjoyed the benefit of theſe improvements, by paſſing over the roads.

Speaking of roads, the Abbé Raynal juſtly remarks. "Let us travel over all the countries of the earth, and wherever we ſhall find no facility of trading from a city to a town, and from a village to a hamlet, we may pronounce the people to be barbarians; and we ſhall only be deceived reſpecting the degree of barbariſm."

ROAD, in navigation, a bay, or place of anchorage, at ſome diſtance from the ſhore, whither ſhips or veſſels occaſionally repair to receive intelligence, orders, or neceſſary ſupplies; or to wait for a fair wind, &c. The excellence of a road conſiſts chiefly in its being protected from the reigning winds and the ſwell of the ſea; in having a good anchoring-ground, and being at a competent diſtance from the ſhore. Thoſe which are not ſufficiently incloſed are termed *open roads*.

ROAN, in the manege. A *roan* horſe is one of a bay,

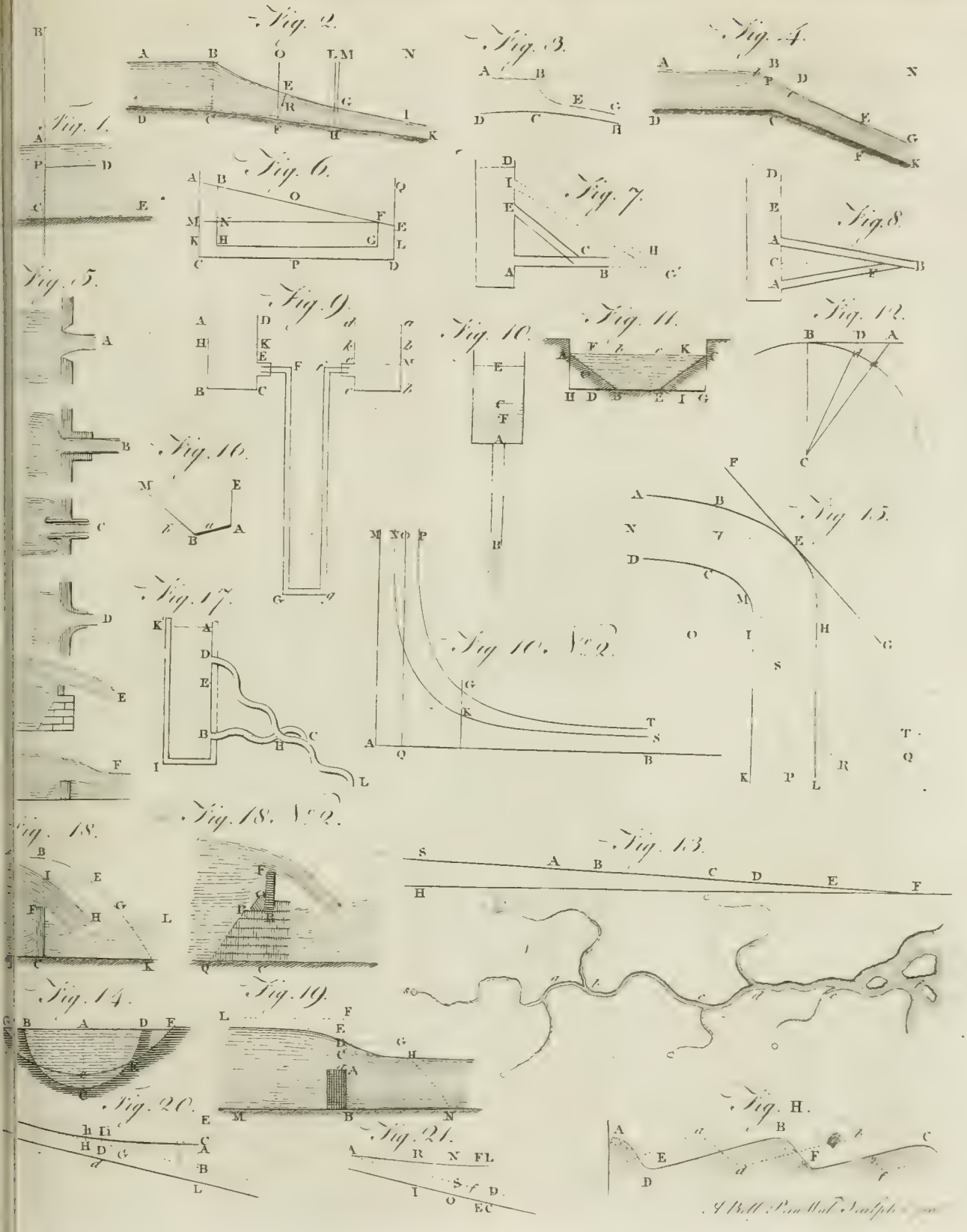
Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
Fig. 6.
Fig. 7.
Fig. 8.
Fig. 9.
Fig. 10.
Fig. 11.
Fig. 12.
Fig. 13.
Fig. 14.
Fig. 15.
Fig. 16.
Fig. 17.
Fig. 18.
Fig. 18. No 2.
Fig. 19.
Fig. 20.
Fig. 21.
Fig. 10. No 2.
Fig. H.

bay, forrel, or black colour, with grey or white spots interspersed very thick. When this party-coloured coat is accompanied with a black head and black extremities, he is called a *roan horse with a black-a-moor's head:* and if the same mixture is predominant upon a deep sorrel, he is called *claret-roan.*

ROANOAK, an island of North America, near the coast of North Carolina. Here the English first attempted to settle in 1585, but were obliged to leave it for want of provisions. E. Long. 75. 0. N. Lat. 35. 40.

Roanoak, a river of North America, which rises in Virginia, runs through Carolina, and at length falls into the sea, where it forms a long narrow bay called *Albemarle sound.*

ROASTING, in metallurgic operations, signifies the dissipation of the volatile parts of an ore by heat. See Metallurgy, *passim.*

ROB, in pharmacy, the juices of fruits purified and inspissated till it is of the consistence of honey.

ROBBERY, the *rapina* of the civilians, is the felonious and forcible taking, from the person of another, of goods or money to any value, by violence or putting him in fear. 1. There must be a taking, otherwise it is no robbery. A mere attempt to rob was indeed held to be felony so late as Henry IVth's time; but afterwards it was taken to be only a misdemeanour, and punishable with fine and imprisonment; till the statute 7 Geo. II. c. 21. which makes it a felony (transportable for seven years) unlawfully and maliciously to assault another, with any offensive weapon or instrument;—or by menaces, or by other forcible or violent manner, to demand any money or goods;—with a felonious intent to rob. If the thief, having once taken a purse, returns it, still it is a robbery: and so it is whether the taking be strictly from the person of another, or in his presence only; as where a robber by menaces and violence puts a man in fear, and drives away his sheep or his cattle before his face. 2. It is immaterial of what value the thing taken is: a penny, as well as a pound thus forcibly extorted, makes a robbery. 3. Lastly, the taking must be by force, or a previous putting in fear; which makes the violation of the person more atrocious than privately stealing. For, according to the maxim of the civil law, "*qui vi rapuit, fur improbior esse videtur.*" This previous violence, or putting in fear, is the criterion that distinguishes robbery from other larcenies. For if one privately steals sixpence from the person of another, and afterwards keeps it by putting him in fear, this is no robbery, for the fear is subsequent: neither is it capital as privately stealing, being under the value of twelvepence. Not that it is indeed necessary, though usual, to lay in the indictment that the robbery was committed by *putting in fear*: it is sufficient, if laid to be done by *violence.* And when it is laid to be done by putting in fear, this does not imply any great degree of terror or affright in the party robbed: it is enough that so much force or threatening, by word or gesture, be used, as might create an apprehension of danger, or induce a man to part with his property without or against his consent. Thus, if a man be knocked down without previous warning, and stripped of his property while senseless, though strictly he cannot be said to be *put in fear*, yet this is undoubtedly a robbery. Or, if a person with a sword drawn begs an alms, and I give it him through mistrust and apprehension of violence, this is a felonious robbery. So if, under a pretence of sale, a man forcibly extorts money from another, neither shall this subterfuge avail him. But it is doubted, whether the forcing a higler, or other chapman, to sell his wares, and giving him the full value of them, amounts to so heinous a crime as robbery.

This species of larceny is debarred of the benefit of clergy by statute 23 Hen. VIII. c. 1. and other subsequent statutes; not indeed in general, but only when committed in a dwelling-house, or in or near the king's highway. A robbery therefore in a distant field, or footpath, was not punished with death; but was open to the benefit of clergy, till the statute 3 & 4 W. and M. c. 9. which takes away clergy from both principals and accessories before the fact, in robbery, wherefoever committed. See Law, N° clxxxvi. 30.

ROBERT bruce, king of Scotland, in 1306; a renowned general, and the deliverer of his country from a state of vassalage to the English. See Scotland.

Robert, king of France, surnamed the Wise and the Pious, came to the crown in 996, after the death of Hugh Capet his father. He was crowned at Orleans, the place of his nativity, and afterwards at Rheims, after the imprisonment of Charles of Lorraine. He married Bertha his cousin, daughter of Conrad king of Burgundy; but the marriage was declared null by Gregory V.; and the king, if we can give credit to cardinal Peter Damien, was excommunicated This anathema made such a noise in France, that all the king's courtesans, and even his very domestics, went away from him. Only two continued with him; who were so deeply impressed with a sense of horror at whatever the king touched, that they purified it with fire: this scruple they carried so far, as to the very plates on which he was served with his meat, and the vessels out of which he drank. The same cardinal reports, that as a punishment for this pretended incest, the queen was delivered of a monster, which had the head and neck of a duck. He adds, that Robert was so struck with astonishment at this species of prodigy, that he lived apart from the queen. He contracted a second marriage with Constance, daughter of William count of Arles and Provence; but the arrogant disposition of this princess would have totally overturned the kingdom, and thrown it into confusion, had not the wisdom of the king prevented her from intermeddling with the affairs of the state. He carefully concealed from her whatever acts of liberality he showed to any of his domestics. "Take care (said he to them) that the queen don't perceive it."—Henry duke of Burgundy, brother of Hugh Capet, dying in 1002, without lawful issue, left his dukedom to his nephew the king of France. Robert invested his second son Henry with this dukedom, who afterwards coming to the crown, resigned it in favour of Robert his cadet. This duke Robert was chief of the first royal branch of the dukes of Burgundy, who flourished till 1361. This dukedom was then re united to the crown by king John, who gave it to his fourth son Philip the Bold, chief of the second house of Burgundy, which was terminated in the person of Charles the Rash, who was slain in 1477. King Robert was so much esteemed for his wisdom and prudence, that he

Robert. he was offered the empire and kingdom of Italy, which, however, he declined to accept. Hugh, called the *Great*, whom he had had by Constance, being dead, he caused his second son Henry I. to be crowned at Rheims. He died at Melun, July 20, 1031, at the age of 60. Robert was, according to the knowledge of the times, a wise prince. Helgand, friar of Fleury, relates, in his life of him, that, to prevent his subjects from falling into the crime of perjury, and incurring the penalties which followed thereon, he made them swear upon a shrine from which the relics had been previously removed, as if intention did not constitute perjury! and long after similar reasoning was adopted. Robert built a great number of churches, and procured a restitution to the clergy of the tithes and wealth which the laylords had made themselves masters of. The depredations were such, that the laity possessed the ecclesiastical treasures by hereditary titles; they divided them among their children; they even gave benefices as a dowry with their daughters, or left them to their sons as lawful inheritance. Although Robert was pious, and although he respected the clergy, yet it was evident that he opposed the bishops with a firmness and resolution of which, for many ages, they had had no examples. Lutheric archbishop of Sens had introduced into his diocese the custom of proving by the eucharist persons accused as guilty of any crime. The king wrote to him in the following strong terms: "I swear (says he) by the faith I owe to God, that if you do not put a stop to the gross abuse complained of, you shall be deprived of your priesthood." The prelate was forced to comply. He punished, in 1022, the Manichéens, canons of Orleans, by burning them at the stake. There are, however, recorded of him some less severe actions, which it is right to mention. A dangerous conspiracy against his person and government having been discovered, and the authors taken into custody, he seized the moment when their judges had met to sentence them to death, to cause an elegant repast to be served up to them. Next day they were admitted to the eucharist. Then Robert told them, that he gave them their pardon, "because none of those can die whom Jesus Christ came to receive at his table" One day when he was at prayers in the chapel, he perceived a thief, who had cut off the half of the fringe of his mantle, proceeding to take the remainder; "Friend (says he with a pleasant countenance), be content with what you have already taken, the rest will very well serve some other." Robert cultivated, and was a patronizer of the sciences. There are several hymns wrote by him, which still continue to be sung in the church. His reign was happy and tranquil. According to some authors, he instituted the order of the Star, commonly attributed to king John.

Robert of France, second son of Louis VIII. and brother to St Louis, who erected in his favour Artois into a royal peerage in the year 1237. It was during this time that the unlucky difference between pope Gregory IX. and the emperor Frederic II. took place. Gregory offered to St Louis the empire for Robert; but the French noblesse, having met to deliberate on this proposal, were of opinion that he ought to reject it. He gave the pope for answer: "That Count Robert esteemed himself sufficiently honoured by being the brother of a king, who surpassed in dignity, in strength, in wealth, and in birth, all other monarchs in the world." Robert accompanied St Louis into Egypt, and fought with more bravery than prudence at the battle of Massoure, on the 9th of February 1250. In his pursuit of the cowards through a certain small village, he was killed by stones, sticks, and other things which they threw at him from the windows. He was an intrepid prince, but too passionate, dogmatical, and quarrelsome.

Robert II. *Count of Artois*, son of the preceding, surnamed the Good and the Noble, was at the expedition into Africa in 1270. He drove the rebels from Navarre in 1276. He brought a very powerful assistance to Charles I. king of Naples, of which kingdom he was regent during the captivity of Charles II. He defeated the Arragonians in Sicily in 1289, the English near Bayonne in 1296, and the Flemish at Furnes in 1298. But having in 1302 imprudently attempted to force these last, when encamped near Courtray, he received no less than 30 wounds; and in that expedition lost both his honour and his life. He was a brave, but passionate and fierce man, and good at nothing but pugilistic encounters. Mahaud his daughter inherited the dukedom of Artois, and gave herself in marriage to Otho duke of Burgundy, by whom she had two daughters, Jane wife of Philip the Long, and Blanche wife of Charles the Fair. In the mean time Philip, son of Robert II. had a son,

Robert III. who disputed the dukedom of Artois with Mahaud his aunt; but he lost his suit by two sentences given in against him in 1302 and 1318. He wished to revive the process in 1329, under Philip of Valois, by means of pretended new titles, which were found to be false. Robert was condemned the third time, and banished the kingdom in 1331. Having found an asylum with Edward III. king of England, he undertook to declare him king of France; which proved the cause of those long and cruel wars which distressed that kingdom. Robert was wounded at the siege of Vannes in 1342, and died of his wound in England. John, son to Robert, and count of Eu, was taken prisoner at the battle of Poitiers in 1356, and terminated his career in 1387. His son Philip II. high constable of France, carried on war in Africa and Hungary, and died in 1397, being a prisoner of the Turks. He had a son named *Charles*, who died in 1472, leaving no issue.

Robert of Anjou, surnamed the Wise, third son of Charles the Lame, succeeded his father in the kingdom of Naples in 1309, by the protection of the popes, and the will of the people, to the exclusion of Charobert son of his eldest brother. He aided the Roman pontiffs against the emperor Henry VII. and, after the death of that prince, was nominated in 1313 vicar of the empire in Italy, in temporal matters, unless a new emperor was elected. This title was given him by Clement V. in virtue of a right which he pretended to have to govern the empire during an interregnum. Robert reigned with glory 33 years, eight months, and died on the 19th of January 1343, aged 64. "This prince (says M. De Montigni) had not those qualities which constitute heroes, but he had those which make good kings. He was religious, affable, generous, kind, wise, prudent, and a zealous promoter of justice." He was called the *Solomon* of his age. He loved the poor, and

and caused a ticket to be placed upon his palace, to give notice when he meant to distribute from the throne. He had no other passion but a very great love for learning. He used to say, that he would rather renounce his crown than his study. His court soon became the sanctuary of the sciences, which he encouraged equally by his example and his bounty. This prince was versed in theology, jurisprudence, philosophy, mathematics, and medicine. Bocace says, "that since the days of Solomon we have not seen so wise a prince upon the throne." For a great part of his life he had no taste for poetry; he even despised it, as, in his opinion, unworthy of a man of learning. A conversation which he had with Petrarch, however, undeceived him; he retained this poet at his court, and attempted himself to write some poems, which are still extant. He was forced to engage a little in war, for which he possessed no great talents: alluding to which, may be seen on his tomb a wolf and a lamb drinking out of the same vessel. Philip of Valois refrained from giving battle in 1339, by the repeated advice which this prince gave him, who was a great friend to France, both from inclination and interest. He detested quarrels among Christian princes, and had studied the science of astrology, not so much to know the course of the stars, as to learn by this chimerical science the hidden things of futurity. He believed that he read in the grand book of heaven a very great misfortune which would befal France if Philip hazarded a battle against the English.

Robert the First, called the Magnificent, duke of Normandy, second son of Richard II. succeeded in 1208 his brother Richard III. whom it is reported he poisoned. He had early in his reign to suppress frequent rebellions of several of the great vassals. He re-established in his estates Baudouin IV. count of Flanders, who had been unjustly stript of his possessions by his own son. He forced Canute king of Denmark, who was also king of England, to divide his possessions with his cousins Alfred and Edward. In the year 1035, he undertook barefooted a journey to the Holy Land; on his return from which he died, being poisoned at Nice in Bithynia, leaving as his successor William his natural son, afterwards king of England, whom he had caused before his departure to be publicly acknowledged in an assembly of the states of Normandy.

Robert, or *Rupert*, surnamed the Short and the Mild, elector Palatine, son of Robert the Niggardly, was born in 1352, and elected emperor of Germany in 1400, after the deposition of the cruel Wenceslas. In order to gain the affection of the Germans, he wished to restore Milanès to the empire, which Wenceslas had taken from it; but his attempts in this respect were unsuccessful. His attachment to the anti-pope Gregory XII. entirely alienated the affections of the German princes. To such a degree were they incensed against him, that they entered into a conspiracy to cut him off; but his death, which happened on the 18th of May 1410, being then 58 years old, put a stop to their machinations. Robert began to settle the sovereignty of the German princes. The emperors had formerly retained in their own hands the power of life and death, within the territories of a great many of the nobles; but he yielded them this right by his letters patent.—The chief fault imputed to this prince was an excess of lenity. But, if we consider the plots which he had to detect, the conspiracies which he had to frustrate, the secret and powerful enemies he had to deal with; if we inquire also into the commotions which the wicked administration of Wenceslas had excited, the irruptions and devastations of plunderers and highway robbers, which the nobles countenanced, and the distressed situation in which he found Germany, we must without hesitation conclude, that his lenity indicated his prudence, in restoring by slow degrees the empire to its original tranquillity. Robert had his virtues, he loved his subjects, and governed them with wisdom. Possessed of much political knowledge for the age in which he lived, he wanted nothing but talents for war to make him an accomplished prince. He was twice married. The name and rank of his first wife is unknown; he had by her a son, who died before him. His second wife was Elizabeth, daughter of Frederic burgrave of Nuremberg, by whom he had five sons and three daughters. The three daughters were, Margaret married to Charles duke of Lorrain; Agnes to Adolphus duke of Cleves; Elizabeth to Frederic duke of Austria. His sons were, Louis the first of the electoral branch, which became extinct in 1559; John father of Christopher king of Denmark; Frederic who died without issue; Otho count of Sintsheim; lastly, Stephen, from whom descended the elector, and the other counts palatine of the Rhine, who are extant at this day.

Robert (of Bavaria), prince palatine of the Rhine, and duke of Cumberland, the son of Frederic, elector palatine, by Elizabeth, daughter of James I. king of England, distinguished himself by his valour as a general and admiral; first in the Dutch, and then in the English service. He was unsuccessful in the cause of his uncle Charles I. against the parliament forces; but under Charles II. he defeated the Dutch fleet, and was made lord high admiral of England in 1673. This prince was a lover of the sciences, and particularly skilful in chemistry. He died in 1682.

ROBERTSON (Dr William), one of the most celebrated historians of his age, was one of those great characters whose private life, flowing in an even and unvaried stream, can afford no important information to the biographer, although his writings will be read to the latest posterity with undiminished pleasure. He was born at the manse of Borthwick in the year 1721. His father was, at the time of his death, one of the ministers of the Old Grey Friars church in Edinburgh, which the Doctor came afterwards to supply. In 1743 he was licenced preacher, and placed in the parish of Gladsmuir in 1744; whence, in 1758, he was translated to Lady Yester's parish in Edinburgh. In 1761, on the death of Principal Goldie, he was elected principal of the university of Edinburgh, and appointed one of the ministers of the Old Grey Friars church. About this period he received the degree of Doctor of Divinity, and was appointed historiographer to his majesty for Scotland, and one of his majesty's chaplains for that kingdom.

We find it not easy to ascertain at what period were first unfolded the great and singular talents which destined Dr Robertson to be one of the first writers that rescued this island from the reproach of not having any good historians. We are, however, assured, that before the publication of any of his literary performances, even

Robertson. even from his first appearance in public life, his abilities had begun to attract the notice of observing men; and to his more intimate friends he discovered marks of such high-minded ambition, as, seconded by those abilities, could not have failed to carry him to the first honours of his profession, in whatever sphere he had been placed, and whatever opposition he might have had to combat.

The first theatre that offered for the display of his talents, was the General Assembly of the Church of Scotland. It is the annual meetings of this court that produce to view men who would otherwise remain in the deepest obscurity. There the humble pastor, whose lot has been cast in the remotest corner of the Highland wilds, feels himself, for a time, on a footing of equality with the first citizen in the kingdom: he can there dispute with him the prize of eloquence, the most flattering distinction to a liberal mind; a distinction which is naturally sought after with the greater eagerness in that assembly, as the simple establishment of the church of Scotland has rendered it the only pre-eminence to which the greatest part of its members can ever hope to attain.

From the moment Dr Robertson first appeared in this assembly, he became the object of universal attention and applause. His speeches were marked with the same manly and persuasive eloquence that distinguishes his historical compositions; and it was observed by all, that while his young rivals in oratory contented themselves with opening a cause, or delivering a studied harangue, he showed equal ability to start objections, to answer, or to reply; and that even his most unpremeditated effusions were not unadorned with those harmonious and seemingly measured periods, which have been so much admired in his works of labour and reflection. He soon came to be considered as the ablest supporter of the cause he chose to espouse, and was now the unrivalled leader of one of the great parties which have long divided the church of which he was a member.

When we reflect upon this circumstance, and consider how much mankind are the same in every society, we shall be the less surprised to find, in the literary works of Dr Robertson, an acquaintance with the human heart, and a knowledge of the world, which we look for in vain in other historians. The man who has spent his life in the difficult task of conducting the deliberations of a popular assembly, in regulating the passions, the interests, the prejudices, of a numerous faction, has advantages over the pedant, or mere man of letters, which no ability, no study, no second-hand information, can ever compensate.

The first work which extended the Doctor's reputation beyond the walls of the general assembly, was a sermon preached at Edinburgh before the society for propagating Christian knowledge, and afterwards published; the subject of which was, 'The state of the world at the appearance of Jesus Christ.' The ingenuity with which a number of detached circumstances are there collected, and shown to tend to one single point, may perhaps rival the art which is so much admired in the bishop of Meaux's celebrated Universal History.

This sermon did great honour to the author; and it is probably to the reputation he gained by it, that we ought to attribute the unanimity with which he was called to be one of the ministers of Edinburgh—an event which happened not long after, viz. in the year 1758. In 1759, he published, in two volumes quarto, 'The History of Scotland, during the reigns of Queen Mary and of King James VI. till his Accession to the Crown of England, with a Review of the Scots History previous to that period.' This work in its structure is one of the most complete of all modern histories. It is not a dry jejune narrative of events, destitute of ornament; nor is it a mere frothy relation, all glow and colouring. The historian discovers a sufficient store of imagination to engage the reader's attention, with a due proportion of judgment to check the exuberance of fancy. The arrangement of his work is admirable, and his descriptions are animated. His style is copious, nervous, and correct. He has displayed consummate skill in rendering such passages of our history as are familiar to our recollection agreeable and entertaining. He has embellished old materials with all the elegance of modern dress. He has very judiciously avoided too circumstantial a detail of trite facts. His narratives are succinct and spirited; his reflections copious, frequent, and generally pertinent. His sentiments respecting the guilt of Mary have indeed been warmly controverted by Messrs Tytler, Stuart, and Whitaker; and the general opinion now seems to be, that their victory is complete. That victory, however, on the part of Whitaker, is sullied by the acrimony with which he writes. Dr Robertson was no rancorous or malignant enemy of the unfortunate queen. While relating, what he doubtless believed, he makes every possible allowance for Mary from the circumstances in which she was placed; and his history will be read with pleasure by candid men of all parties as long as the language in which it is composed shall continue to be understood.

In 1769, Dr Robertson published, in three volumes quarto, The History of the Reign of the Emperor Charles V. with a View of the Progress of Society in Europe, from the Subversion of the Roman Empire to the beginning of the 16th century.—The vast and general importance of the period which this history comprises, together with the reputation which our historian had deservedly acquired, co-operated to raise such high expectations in the public, that no work perhaps was ever more impatiently wished for, or perused with greater avidity. The first volume (which is a preliminary one, containing the progress of society in Europe, as mentioned in the title) is a very valuable part of the work; for it serves not only as a key to the pages that follow, but may be considered as a general introduction to the study of history in that period in which the several powers of Europe were formed into one great political system, in which each took a station, wherein it has since remained (till within a very few years at least) with less alterations than could have been expected, after the shocks occasioned by so many internal revolutions, and so many foreign wars. Of the history itself, it may be sufficient to observe, that it is justly ranked among the capital pieces of historical excellence. There is an elegance of expression, a depth of discernment, and a correctness of judgment, which do honour to the historian. The characters are inimitably penned. They are not contrasted by a studied antithesis, but by an opposition which results from a very

very acute and penetrating insight into the real merits of each character, fairly deduced from the several circumstances of his conduct exemplified in the history. For this work the Doctor got L.4500 Sterling.

In 1779, Dr Robertson published The History of America, in two volumes quarto. This celebrated work may be considered with great propriety as a sequel to the preceding history. From the close of the 15th century we date the most splendid era in the annals of modern times. Discoveries were then made, the influence of which descended to posterity; and events happened that gave a new direction to the spirit of nations.

To the inhabitants of Europe, America was in every respect a new world. There the face of the earth changed its appearance. The plants and trees and animals were strange; and nature seemed no longer the same. A continent opened that appeared to have recently come from the hands of the Creator, and which showed lakes, rivers, and mountains, on a grander scale, and the vegetable kingdom in greater magnificence, than in the other quarters of the globe; but the animal tribes in a state of degradation, few in number, degenerated in kind, imperfect, and unfinished. The human species in the earliest stage of its progress, vast and numerous nations in the rudest form of the savage state which philosophers have contemplated, and two great empires in the lowest degree of civilization which any records have transmitted to our review, presented to the philosophic eye at this period the most fruitful subject of speculation that was to be found in the annals of history.

The discovery of the New World, moreover, was not only a curious spectacle to the philosopher, but, by the change which it effected, an interesting spectacle to the human race. When Columbus set sail for unknown lands, he little expected that he was to make a revolution in the system of human affairs, and to form the destiny of Europe for ages to come. The importance and celebrity therefore of the subject had attracted the attention of philosophers and historians. Views and sketches of the new world had been given by able writers, and splendid portions of the American story had been adorned with all the beauties of eloquence. But, prior to the appearance of Dr Robertson's history, no author had bestowed the mature and profound investigation which such a subject required, or had finished, upon a regular plan, that complete narration and perfect whole which it is the province of the historian to transmit to posterity. And as the subject upon which our author entered was grand, his execution was masterly. The character of his former works was immediately discerned in it. They had been read with uncommon admiration. When the History of Scotland was first published, and the author altogether unknown, Lord Chesterfield pronounced it to be equal in eloquence and beauty to the productions of Livy, the purest and most classical of all the Roman historians. His literary reputation was not confined to his own country: the testimony of Europe was soon added to the voice of Britain. It may be mentioned, indeed, as the characteristic quality of our author's manner, that he possessed in no common degree that supported elevation which is suitable to compositions of the higher class; and, in his History of America, he displayed that happy union of strength and grace which becomes the majesty of the historic muse. In the fourth book of his first volume, which contains a description of America when first discovered, and a philosophical inquiry into the manners and policy of its ancient inhabitants, he displays, moreover, so much patient investigation and sound philosophy, abounds in such beautiful or interesting description, and exhibits such variety and copiousness of elegant writing, that future times will probably refer to it as that part of his works which gives the best idea of his genius, and is the most finished of all his productions.

In 1787 appeared a translation of the Abbé Clavigero's History of Mexico; in which work the author threw out various reflections, tending in several instances to impeach the credit of Dr Robertson's History of America. This attack induced our learned historian to revise his work, and to inquire into the truth of the charges brought against it by the historian of New Spain: and this he appears to have done with a becoming attention to the importance of the facts that are controverted, and to the common interests of truth. The result he published in 1788, under the title of Additions and Corrections to the former Editions of Dr Robertson's History of America.—In many of the disputed passages, he fully answered the Abbé Clavigero, and vindicated himself: in others he candidly submitted to correction, and thus gave additional value to his own work.

The literary labours of Dr Robertson appear to have been terminated in 1791 by the publication of An Historical Disquisition concerning the Knowledge which the Ancients had of India, and the Progress of Trade with that Country prior to the Discovery of the Passage to it by the Cape of Good Hope; with an Appendix, containing Observations on the Civil Polity, the Laws, and Judicial Proceedings, the Arts, the Sciences, and Religious Institutions of the Indians.—The perusal of Major Rennell's Memoir, for illustrating his map of Hindostan, suggested to Dr Robertson the design of examining more fully than he had done, in his History of America, into the knowledge which the ancients had of India, and of considering what is certain, what is obscure, and what is fabulous, in their accounts of that remote country. Of his various performances, this is not that of which the design is the most extensive, or the execution the most elaborate; but in this historical disquisition we perceive the same patient assiduity in collecting his materials, the same discernment in arranging them, the same perspicuity of narrative, and the same power of illustration, which so eminently distinguish his other writings, and which have long rendered them the delight of the British reader at home and an honour to British literature abroad.

A truly useful life Dr Robertson closed on the 11th of June 1793, at Grange-House, near Edinburgh, after a lingering illness, which he endured with exemplary fortitude and resignation. It may be truly observed of him, that no man lived more respected, or died more sincerely lamented. Indefatigable in his literary researches, and possessing from nature a sound and vigorous understanding, he acquired a store of useful knowledge, which afforded ample scope for the exertion of his extraordinary abilities, and raised him to the most distinguished eminence in the republic of letters. As

a minister of the gospel, he was a faithful pastor, and justly merited the esteem and veneration of his flock. In a word, he may be pronounced to be one of the most perfect characters of the age; and his name will be a lasting honour to the island that gave him birth. His conversation was cheerful, entertaining, and instructive; his manners affable, pleasing, and endearing.

Dr Robertson left three sons and two daughters. The eldest son is procurator for the church of Scotland, and an advocate. The other two are officers in the army; and one of them distinguished himself under Lord Cornwallis in such a manner as to command the warmest praise from that illustrious general.

ROBIGUS AND ROBIGO, a Roman god and goddess, who joined in the preservation of corn from *blight*. Their festival was kept on the 25th of April.

ROBIN HOOD. See HOOD.

Robin Red-Breast. See MOTACILLA.

ROBINIA, FALSE ACACIA, in botany: A genus of the decandria order, belonging to the diadelphia class of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The calyx is quadrifid; the legumen gibbous and elongated. There are nine species. The most remarkable are the caragnana and ferox, the leaves of the former of which are conjugated, and composed of a number of small folioles, of an oval figure, and ranged by pairs on one common stock. The flowers are leguminous, and are clustered on a filament. Every flower consists of a small bell-shaped petal, cut into four segments at the edge, the upper part being rather the widest. The keel is small, open, and rounded. The wings are large, oval, and a little raised. Within are 10 stamina united at the base, curved towards the top, and rounded at the summit. In the midst of a sheath, formed by the filaments of the stamina, the pistil is perceivable, consisting of an oval germen, terminated by a kind of button. This germen becomes afterwards an oblong flattish curved pod, containing four or five seeds, of a size and shape irregular and unequal; yet in both respects somewhat resembling a lentil.

This tree grows naturally in the severe climates of Northern Asia, in a sandy soil mixed with black light earth. It is particularly found on the banks of great rivers, as the Oby, Jenisia, &c. It is very rarely met with in the inhabited parts of the country, because cattle are very fond of its leaves, and hogs of its roots; and it is so hardy, that the severest winters do not affect it. Gmelin found it in the neighbourhood of Tobolsk, buried under 15 feet of snow and ice, yet had it not suffered the least damage. Its culture consists in being planted or sowed in a lightish sandy soil, which must on no account have been lately manured. It thrives best near a river, or on the edge of a brook or spring; but presently dies if planted in a marshy spot, where the water stagnates. If it is planted on a rich soil, well tilled, it will grow to the height of 20 feet, and in a very few years will be as big as a common birch tree.

In a very bad soil this tree degenerates, and becomes a mere shrub: the leaves grow hard, and their fine bright green colour is changed to a dull deep green. The Tongusian Tartars, and the inhabitants of the northern parts of Siberia, are very fond of the fruit of this tree, it being almost the only sort of pulse they eat. M. Strahlenberg, author of a well-esteemed description of Siberia, assures us that this fruit is tolerably pleasant food, and very nourishing. These pease are first infused in boiling water, to take off a certain acrid taste they have, and are afterwards dressed like common pease or Windsor beans; and being ground into meal, pretty good cakes are made of them. The leaves and tender shoots of this tree make excellent fodder for several sorts of cattle. The roots, being sweet and succulent, are very well adapted to fattening hogs; and the fruit is greedily eaten by all sorts of poultry. After several experiments somewhat similar to the methods used with anil and indigo, a fine blue colour was procured from its leaves. The smaller kind of this tree seems still better adapted to answer this purpose. The striking elegance of its foliage, joined to the pleasing yellow colour of its beautiful flowers, should, one would imagine, bring it into request for forming nosegays, or for speedily making an elegant hedge.

Besides the qualities above recited, it possesses the uncommon advantage of growing exceedingly quick, and of being easily transplanted. There are large plantations of it now in Sweden, Norway, Lapland, and Iceland. Linnæus assures us, that, after the *Pinus fol. quinis*, erroneously called the *cedar tree of Siberia*, this tree, of all that are to be found in Siberia, is most worthy of cultivation.

2. The robinia ferox is a beautiful hardy shrub, and, on account of its robust strong prickles, might be introduced into this country as a hedge plant, with much propriety. It resists the severest cold of the climate of St Petersburgh, and perfects its seed in the garden of the empress there. It rises to the height of six or eight feet; does not send out suckers from the root, nor ramble so much as to be with difficulty kept within bounds. Its flowers are yellow, and the general colour of the plant a light pleasing green. A figure of it is given in the *Flora Rossica* by Dr Pallas, who found it in the southern districts, and sent the seeds to St Petersburgh, where it has prospered in a situation where few plants can be made to live.

ROBINS (Benjamin), a most ingenious mathematician, was born at Bath in 1707. His parents were Quakers, and of low condition, consequently neither able nor willing to have him much instructed in human learning. Nevertheless his own propensity to science procured him a recommendation to Dr Pemberton at London; by whose assistance, while he attained the sublimer parts of mathematical knowledge, he commenced teacher of the mathematics. But the business of teaching, which required confinement, not suiting his active disposition, he gradually declined it, and engaged in business that required more exercise. Hence he tried many laborious experiments in gunnery, from the persuasion that the resistance of the air has a much greater influence on swift projectiles than is generally imagined. Hence also he was led to consider the mechanic arts that depend on mathematical principles; as the construction of mills, the building of bridges, the draining of fens, the rendering of rivers navigable, and the making of harbours. Among other arts, fortification much engaged his attention; and he met with opportunities of perfecting himself by viewing the principal strong places of Flanders, in some tours he made abroad with persons of distinction.

Upon his return from one of these excursions, he found

found the learned amuſed with Dr Berkeley's work, intitled *The Analyſt*, in which an attempt was made to explode the method of fluxions. Mr Robins was therefore adviſed to clear up this affair by giving a diſtinct account of Sir Iſaac Newton's doctrines, in ſuch a manner as to obviate all the objections that had been made without naming them. Accordingly he publiſhed, in 1735, A Diſcourſe concerning the Nature and Certainty of Sir Iſaac Newton's Method of Fluxions: and ſome exceptions being made to his manner of defending Sir Iſaac Newton, he afterwards wrote two or three additional diſcourſes. In 1738 he defended the ſame great philoſopher againſt an objection contained in a note at the end of a Latin piece, called *Matho, ſive Coſmotheoria puerilis*; and the following year printed Remarks on M. Euler's Treatiſe of Motion, on Dr Smith's Syſtem of Optics, and on Dr Jurin's Diſcourſe of diſtinct and indiſtinct Viſion annexed to Dr Smith's work. In the meanwhile, Mr Robins did not ſolely confine himſelf to mathematical ſubjects: for in 1739 he publiſhed three pamphlets on political affairs, without his name; when two of them, relating to the convention and negociations with Spain, were ſo univerſally eſteemed, as to occaſion his being employed in a very honourable poſt; for on a committee being appointed to examine into the paſt conduct of Sir Robert Walpole, he was choſen their ſecretary.

In 1742, Mr Robins publiſhed a ſmall treatiſe, intitled *New Principles of Gunnery*, containing the reſult of many experiments; when a Diſcourſe being publiſhed in the Philoſophical Tranſactions, in order to invalidate ſome of his opinions, he thought proper, in an account he gave of his book in the ſame Tranſactions, to take notice of thoſe experiments; in conſequence of which, ſeveral of his Diſſertations on the Reſiſtance of the Air were read, and the experiments exhibited before the Royal Society, for which he was preſented by that honourable body with a gold medal.

In 1748 appeared Lord Anſon's Voyage round the World, which, though Mr Walter's name is in the title, has been generally thought to be the work of Mr Robins. Mr Walter, chaplain on board the Centurion, had brought it down to his departure from Macao for England, when he propoſed to print the work by ſubſcription. It was, however, it is ſaid, thought proper, that an able judge ſhould review and correct it, and Mr Robins was appointed; when, upon examination, it was reſolved that the whole ſhould be written by Mr Robins, and that what Mr Walter had done ſhould only ſerve as materials. Hence the introduction entire, and many diſſertations in the body of the work, it is ſaid, were compoſed by him, without receiving the leaſt aſſiſtance from Mr Walter's manuſcript, which chiefly related to the wind and the weather, the currents, courſes, bearings, diſtances, the qualities of the ground on which they anchored, and ſuch particulars as generally fill up a ſailor's account. No production of this kind ever met with a more favourable reception; four large impreſſions were ſold within a twelvemonth; and it has been tranſlated into moſt of the languages of Europe. The fifth edition, printed at London in 1749, was reviſed and corrected by Mr Robins himſelf. It appears, however, from the corrigenda and addenda to the 1ſt volume of the Biographia Britannica, printed in the beginning of the fourth volume of that work, that Mr Robins was only conſulted with reſpect to the diſpoſition of the drawings, and that he had left England before the book was printed. Whether this be the fact, as it is aſſerted to be by the widow of Mr Walter, it is not for us to determine.

It is certain, however, that Mr Robins acquired the fame, and he was ſoon after deſired to compoſe an apology for the unfortunate affair at Preſtonpans in Scotland, which was prefixed as a preface to The Report of the Proceedings of the Board of General Officers on their Examination into the Conduct of Lieutenant-General Sir John Cope; and this preface was eſteemed a maſterpiece in its kind. He afterwards, through the intereſt of Lord Anſon, contributed to the improvements made in the Royal Obſervatory at Greenwich. Having thus eſtabliſhed his reputation, he was offered the choice of two conſiderable employments; either to go to Paris as one of the commiſſaries for adjuſting the limits of Arcadia, or to be engineer-general to the Eaſt India company. He choſe the latter, and arrived in the Eaſt Indies in 1750; but the climate not agreeing with his conſtitution, he died there the year following.

ROBINSON (the moſt Rev. Sir Richard), archbiſhop of Armagh and Lord Rokeby, was immediately deſcended from the Robinſons of Rokeby in the North Riding of the county of York, and was born in 1709. He was educated at Weſtminſter ſchool, from whence he was elected to Chriſt-Church, Oxford, in 1726. After continuing his ſtudies there the uſual time, Doctor Blackburne, archbiſhop of York, appointed him his chaplain, and collated him firſt to the rectory of Elton, in the Eaſt Riding of Yorkſhire, and next to the prebend of Grindal, in the cathedral of York. In 1751 he attended the Duke of Dorſet, lord-lieutenant of Ireland, to that kingdom, as his firſt chaplain, and the ſame year was promoted to the biſhopric of Killala. A family connection with the Earl of Holderneſſe, who was ſecretary of ſtate that year, with the Earl of Sandwich and other noblemen related to him, opened the faireſt proſpects of attaining to the firſt dignity in the Iriſh church. Accordingly in 1759 he was tranſlated to the united ſees of Leighlin and Ferns, and in 1761 to Kildare. The Duke of Northumberland being appointed to the lieutenancy of Ireland in 1765, he was advanced to the primacy of Armagh, made lord-almoner, and vice-chancellor of the univerſity of Dublin. When Lord Harcourt was lord-lieutenant of Ireland in 1777, the king was pleaſed by privy-ſeal at St James's, February 6th, and by patent at Dublin the 26th of the ſame month, to create him Baron Rokeby of Armagh, with remainder to Matthew Robinſon of Weſt Layton, Eſq; and in 1783 he was appointed prelate to the moſt illuſtrious order of St Patrick. On the death of the Duke of Rutland lord-lieutenant of Ireland in 1787, he was nominated one of the lords-juſtices of that kingdom. Sir William Robinſon, his brother, dying in 1785, the primate ſucceeded to the title of baronet, and is the ſurvivor in the direct male line of the Robinſons of Rokeby, being the 8th in deſcent from William of Kendal. His grace died at Clifton near Briſtol in the end of October 1794.

No primate ever ſat in the ſee of Armagh who watched more carefully over the intereſt of the church of Ireland, as the ſtatute-book evinces. The act of the

11th

11th and 12th of his present majesty, which secures to bishops and ecclesiastical persons repayment by their successors of expenditures in purchasing glebes and houses, or building new houses, originated from this excellent man, and must ever endear his name to the clergy. The other acts for repairing churches, and facilitating the recovery of ecclesiastical dues, were among the many happy exertions of the primate.

But it was at Armagh, the ancient seat of the primacy, that he displayed a princely munificence. A very elegant palace, 90 feet by 60, and 40 high, adorns that town; it is light and pleasing, without the addition of wings or lesser parts; which too frequently wanting a sufficient uniformity with the body of the edifice, are unconnected with it in effect, and divide the attention. Large and ample offices are conveniently placed behind a plantation at a small distance. Around the palace is a large lawn, which spreads on every side over the hills, skirted by young plantations, in one of which is a terrace, which commands a most beautiful view of cultivated hill and dale; this view from the palace is much improved by the barracks, the school, and a new church at a distance; all which are so placed as to be exceedingly ornamental to the whole country.

The barracks were erected under the primate's direction, and form a large and handsome edifice. The school is a building of considerable extent, and admirably adapted for the purpose; a more beautiful or better contrived one is nowhere to be seen; there are apartments for a master, a school-room 56 feet by 28, a large dining room and spacious airy dormitories, with every other necessary, and a spacious play-ground walled in; the whole forming a handsome front: and attention being paid to the residence of the master (the salary is 400 l. a year), the school flourishes, and must prove one of the greatest advantages to the country. This edifice was built entirely at the primate's expence. The church is erected of white stone, and having a tall spire, makes a very agreeable object, in a country where churches and spires do not abound. The primate built three other churches, and made considerable reparations to the cathedral; he was also the means of erecting a public infirmary, contributing amply to it himself: he likewise constructed a public library at his own cost, endowed it, and gave it a large collection of books; the room is 45 feet by 25, and 20 high, with a gallery and apartments for the librarian. The town he ornamented with a market-house and shambles, and was the direct means, by giving leases upon that condition, of almost new-building the whole place. He found it a nest of mud cabins, and he left it a well-built city of stone and slate. These are noble and spirited works, in which the primate expended not less than L. 30,000. Had this sum been laid out in improving a paternal estate, even then they would be deserving great praise; but it is not for his posterity but the public good that his grace was so munificent. A medal was struck by the ingenious William Mossop of Dublin, which has on one side the head of the primate, inscribed "Richard Robinson, Baron Rokeby, Lord Primate of all Ireland." And on the reverse, the south front of the observatory at Armagh, erected by his grace, with this admirable motto, "The Heavens declare the glory of God." MDCCLXXXIX.

Robinson (Robert), a dissenting minister of considerable note, was born on the 8th of October 1735 at Swaffham in Norfolk. His father died when he was young; and his maternal grandfather Robert Wilkin, of Milden-hall, Suffolk, gent. who had ever been dissatisfied with his daughter's marriage, deprived him of his maternal inheritance, cutting him off with half-a-guinea. His uncle, however, who was a substantial farmer, in some measure supplied this loss. He took Mr Robinson home, and placed him under the Rev. Joseph Brett, at Scarning school in Norfolk, with a view to the ministry of the church of England; where he had for one of his school-fellows the lord-chancellor Thurlow. When about the age of 15 or 16, he imbibed the notions of George Whitfield; on which account he was discarded by his uncle, and again exposed to poverty and want. He first directed his thoughts towards the ministry in the year 1754, and commenced preacher in the following year at the age of 20; preaching his first sermon to a congregation of poor people at Milden-hall. He continued for a year or two as one of Mr Whitfield's preachers, and during that period he married. In the year 1758, however, he determined to separate from the Methodists; after which he settled at Norwich with a small congregation formed chiefly of his methodistic friends, being at that time an Independent. In the year 1759 he was invited to Cambridge, and for two years preached on trial to a congregation consisting of no more than 34 people, and so poor that they could only raise L. 3 : 6 : 0 a quarter for his subsistence. In June 1761 he settled as their pastor, and was ordained in the usual manner; at which time we are told he exercised the office of a barber. In 1774, his congregation had so much increased as to consist of 1000 souls, including children and servants.

In Cambridge Mr Robinson's talents soon attracted notice, and he quickly set up a Sunday evening lecture, which was well attended. His preaching was altogether without notes; a method in which he was peculiarly happy: not by trusting to his memory entirely, nor by working himself up to a degree of warmth and passion, to which the preachers among whom he first appeared commonly owe their ready utterance; but by thoroughly studying and making himself perfectly master of his subject, and a certain faculty of expression which is never at a loss for suitable and proper words. In short, his manner was admirably adapted to enlighten the understanding, and to affect and reform the heart. He had such a plainness of speech, such an easy and apparent method in dividing a discourse, and such a familiar way of reasoning, as discovered an heart filled with the tenderest concern for the meanest of his hearers; and yet there was a decency, propriety, and justness, that the most judicious could not but approve. Several gentlemen of the university, eminent for character and abilities, we are told, were his constant hearers.

The circumstances which lost him his uncle's patronage paved the way for the future events of his life. The incident which made him discard the common sentiments on the subject of baptism, at once marked the turn of his mind, and shows what apparently slight causes frequently determine the lot and usefulness of our lives. He was invited to the baptism of a child; the minister who was to perform the service keeping the company in long expectation of his appearance, some one

one suggested, that supposing the child were not baptized at all, he saw not how it could affect his happiness. Though the conversation was not pursued, the hint struck Mr Robinson's mind; and he immediately determined to read the New Testament with this particular view, to examine what it said concerning the baptism of infants. He accordingly began with the Gospel of Matthew; and, in succession, perused the historical and epistolary books; in expectation that he should find in every following part what he had not met with in the preceding parts of the sacred volume; namely, passages recommending and urging this rite. But observing, on the whole, a total silence about it, he thought it his duty to relinquish the practice, as without foundation in the rule of our faith; which appeared to him to speak only of the baptism of believers.

This change of his sentiments was more unfavourable than the former alterations in his religious judgment to his worldly views; and having married very early in life from pure affection, he was involved in great difficulties for near 12 years after his settlement in Cambridge; as, in that course of time, his family became numerous, and the support of an aged mother, as well as of a wife and ten children, depended upon him. But unexpected supplies, from quarters of which he was ignorant, frequently relieved his necessities, and confirmed his trust in Providence: yet the situation of his family must, it is easy to conceive, have much affected his mind. For he appears to have possessed great tenderness and sensibility, and to have regarded with peculiar endearment his domestic connections.

It may be reckoned a circumstance worthy of mention, that the sphere of Mr Robinson's ministry was the same in which his great-grandfather Mr Shelly, of Jesus College, and vicar of All-Saints, had, with others, diffused the principles of the Puritans, about the beginning of the last century. The reputation of the Dissenters in the university and neighbourhood had for almost a century been sinking into contempt, when Mr Robinson settled with the baptist church at Stone-Yard. His abilities and assiduity, however, raised their reputation. The place in which his people assembled, which was at first a barn, afterwards a stable and granary, and then a meeting-house, but still a damp, dark, and ruinous place, soon became too small for the audience; and several of the new auditors being men of fortune, they purchased the site, and erected at their own expence a new house in the year 1764.

His labours as a preacher were not limited to the town of Cambridge; but soon after his coming there, he set up several lectures in the adjacent villages. His lectures were either annual or occasional, or stated on fixed days. The usual time was half an hour after six in the evening; and sometimes at five in the morning; and now and then in the summer at two in the afternoon, for the sake of those who came from a distance.

He died on the 9th of June 1790, at the house of William Russel, Esq; of Showell green near Birmingham. He had laboured under an alarming disorder for some time before; but on the Sunday preceding his death he preached a charity sermon. On Monday he was seized with a fit: on Tuesday he recovered and went to bed tolerably well, and was found dead next morning.

The abilities of Mr Robinson were very considerable, as appears from his numerous works; and he possessed the quality of expressing his thoughts in an easy and a forcible manner. But he appears to have been of an unsteady temper, and, in our opinion, acquires but little credit either from the frequency with which he changed his religious creed (for we have reason to believe he died a Socinian), or from the foolish and undeserved acrimony with which he treated the Church of England. His Plan of Lectures on the Principles of Nonconformity, for the Instruction of Catechumens, is a piece of the most unjust and illiberal abuse that we have ever seen, and would have disgraced the most high flying Puritan of the last century.

Mr Robinson's largest work, the History of Baptism and of the Baptists, was published since his death, and is written in the same style and with the same confidence as his other works. Yet, as we have heard it remarked by a learned and liberal professor of Theology in the church which he opposed, it is not a little remarkable that there is in it no argument or fact against infant baptism which was not answered by Dr Wall nearly 100 years ago, of whose arguments Mr Robinson however takes no notice.

ROBORANTS, in pharmacy, medicines which strengthen the parts, and give new vigour to the constitution.

ROCHEFORT, a handsome and considerable town of France in the territory of Aunis. It was constructed by Louis XIV. and is built in the midst of marshes expressly drained for that purpose; and time evinced the utility of the project, for as a port it soon became as necessary and important to the crown of France as Brest or Toulon. It has a department of the marine, and has large magazines of naval stores. There is also one of the finest halls of arms in the kingdom, and a great many workmen employed in making them; there are also forges for anchors, and work-houses for ship-carpenters, who are employed in every thing that relates to the fitting out of ships that come within the compass of their province. They likewise cast great guns here; and have artists, whose employment is sculpture and painting. There are also stocks for building men of war, rope walks, magazines of provisions and powder, a manufactory of sail-cloth, an hospital for sailors, and proper places to clean the ships. Add to these, the houses of the intendant, the square of the capuchins, and the superb structure which contains lodgings for 300 marine guards, where they are taught the business and exercises belonging to seamen and officers who go on board the men of war.

Beside the usual number of workmen which were employed at Rochefort during the monarchy, which amounted to about 900, there were about 600 galley slaves, occupied in the most painful and laborious branches of service. The town is situated on the river Charente, about five leagues from its mouth, and was fortified by Louis XIV. at the time he constructed it; but its situation is at so considerable a distance from the sea, as to render it sufficiently secure from any attack, and they have therefore closed up the battlements, and neglected the fortifications. The town is laid out with great beauty and elegance. The streets are all very broad and straight, extending through the whole place from side to side; but the buildings do not correspond with them in this respect, as they are mostly low and irregular. W. Long. 0. 54. N. Lat. 46. 3.

Rochefoucault.

ROCHEFOUCAULT (Francis earl of), descended of an illustrious family, next in dignity to that of the sovereigns, was chamberlain to king Charles VIII. and Louis XII. His character at court was admired as obliging, generous, upright, and sincere. In 1494 he was godfather to Francis I. who, when he came to the throne, continued to pay great respect to that spiritual relation. He made him his chamberlain in ordinary, and erected, in 1515, the barony of Rochefoucault into an earldom; and, in his writ of erection, observes, that he did this in memory of the great, honourable, highly useful, and commendable services which the said Francis had done to his predecessors, to the crown of France, and to himself. The earl of Rochefoucault died in 1517, leaving behind him an illustrious memory, and a character universally respected. Since his time all the eldest sons of that family have taken the name of Francis.

ROCHEFOUCAULT (Francis duke de la), prince of Marillac, governor of Poitou, was born in 1603. —He was the son of Francis, the first duke of Rochefoucault, and was distinguished equally by his courage and his wit. These shining qualities endeared him to all the nobility at court, who were ambitious of decorating themselves at once with the laurels of Mars and of Apollo. He wrote two excellent works; the one a book of Maxims, which M. de Voltaire says has contributed more than any thing else to form the taste of the French nation; and the other, Memoirs of the Regency of Queen Anne of Austria. It was partly at the instigation of the beautiful duchess de Longueville, to whom he had been long attached, that the duke de Rochefoucault engaged in the civil wars, in which he signalized himself particularly at the battle of St Antoine. Beholding one day a portrait of this lady, he wrote underneath it these two lines from the tragedy of Alcyonée:

"*Pour mériter son cœur, pour plaire à ses beaux yeux,*
"*J'ai fait la guerre aux rois, je l'aurois fait aux deux.*"

Which may be thus rendered in English:

"To gain her heart, and please her sparkling eyes,
"I've war'd with kings, and would have brav'd the skies."

It is reported, that after his rupture with Madame Longueville, he parodied the above verses thus:

"*Pour ce cœur inconstant, qu'enfin je connois mieux,*
"*Je fais la guerre aux rois, j'en ai perdu les yeux.*"

After the civil wars were ended, he thought of nothing but enjoying the calm pleasures of friendship and literature. His house became the rendezvous of every person of genius in Paris and Versailles. Racine, Boileau, Savigne, and La Fayette, found in his conversation charms which they sought for in vain elsewhere. He was not, however, with all his elegance and genius, a member of the French Academy. The necessity of making a public speech the day of his reception was the only cause that he did not claim admittance. This nobleman, with all the courage he had displayed upon various critical occasions, and with his superiority of birth and understanding over the common run of men, did not think himself capable of facing an audience, to utter only four lines in public, without being out of countenance. He died at Paris in 1680, aged 68, leaving behind him a character which has been variously drawn by those who during his life were proud of his friendship. That he was well acquainted with human nature is certain; and his merit in that respect was fully admitted by Swift, who was himself not easily imposed upon by the artificial disguises of the hypocrite.

Rochelle.

ROCHELLE, a celebrated city of France, capital of the territory of Aunis, with a very commodious and safe harbour, which, though it does not admit vessels of any considerable burden, is yet well calculated for trade. "It may be divided (says Mr Wraxal) into three parts; the bason, which is the innermost of these, is only a quarter of a mile in circumference; and at the entrance are two very noble Gothic towers, called the Tower de St Nicholas, and the Tour de la Chaine. They are now in a state of decay, but were anciently designed to protect the town and harbour. Without these towers is the Avant Port, extending more than a league, and bounded by two points of land to the north and south. Beyond all is the road where the largest ships usually anchor, protected from the south-west winds by the islands of Re, Oleron, and Aix." The celebrated mound erected by Richlieu extends from side to side across the whole harbour, nearly an English mile in length, and when the sea retires is still visible. "I walked out upon it (says Mr Wraxal) above 300 feet. Its breadth is at this time more than 150 feet, and it widens continually towards the base. No effort of art or power can possibly impress the mind with so vast and sublime an idea of the genius of Richlieu, as does this bulwark against the sea. While I stood upon it, in the middle of the port, between the waves which rolled on either side, and contemplated its extent and strength, I was almost inclined to suppose this astonishing work to be superior to human power, and the production rather of a deity than of a mortal. A small opening of about 200 feet was left by Pompey Targon, the architect who constructed it, to give entrance to vessels, and shut up by chains fixed across it. A tower was likewise erected at each end, no remains of which are now to be seen. Neither the duke of Buckingham, nor the earl of Lindsey, who were successively sent from England to the aid of the besieged by Charles the First, dared to attack this formidable barrier: they retired, and left Rochelle to its fate. In all probability, a thousand years, aided by storms and all the fury of the sea, will make little or no impression on this mound, which is designed to endure as long as the fame of the Cardinal, its author."

Before the revolution, Rochelle was a bishop's see, and contained a college of humanities, an academy, a school for medicine, anatomy, and botany, and a mint. It cannot lay claim to any remote antiquity, being merely a little collection of houses on the shore, inhabited by fishermen, when William IX. last count of Poitou, rendered himself master of it in 1139. From this Prince it descended to his only daughter Eleanor, afterwards queen of Henry II. of England; and her charter incorporating the town is still preserved in the registers of the city. In the year 1540, Rochelle was the grand asylum of the Protestants; and the massacre at Paris was soon followed by the siege of Rochelle, which began in November 1572, and was raised in June 1573; but in 1628, after a most obstinate resistance, and a siege of 13 months, it surrendered to the

the mercy of Louis XIII. At the beginning of the first siege, the number of inhabitants in the city amounted to 72,000; in the second they diminished to 28,000; and they were, when Mr Wraxal was there, between 17 and 18,000, of which scarce 2000 were Huguenots. The houses of this city are fine, and supported with piazzas, under which persons may walk in all weathers; and the streets in general are as straight as a line. There are several handsome churches, and other structures, besides a remarkable pump in the square of Dauphiny, which throws out the water through several pipes. There are no remains of the old fortifications, except on the side of the harbour, where there are bulwarks and strong towers to defend the entrance. The new fortifications are in the manner of Vauban. Before Canada was ceded to England, and New Orleans to Spain, the trade of Rochelle was very lucrative. It revived about the year 1773, and, beside that to the coast of Guinea and the East Indies, the inhabitants carried on a considerable trade in wines, brandy, salt, paper, linen cloth, and serge. It is seated on the ocean, in W. Long. 1. 11. N. Lat. 46. 10.

ROCHESTER, a city of Kent, in England, is situated on the Medway, seven miles and a half north of Maidstone, and 30 from London. It appears to have been one of the Roman stations, from the bricks in the walls, as well as the Roman coins that have been found about it. It has three parish churches built with stone and flints, besides the cathedral, which is but a mean structure. This little city, which was made a bishop's see by king Ethelbert, anno 604, has met with many misfortunes. In 676, it was sacked by Eldred king of Mercia; in 839 and 885, besieged by the Danes, but rescued by king Alfred. About 100 years after, it was besieged by king Ethelred, and forced to pay L. 100. Anno 999 it was taken and plundered by the Danes. Anno 1088 it was besieged and taken by William Rufus. In king John's time it was taken from the Barons, after three month's siege; and the very next year, viz. 1256, its castle, founded by William the Conqueror, was stormed and taken by several of the Barons, under the French king's son. In the reign of Henry III. it was besieged by Simon Montford, who burnt its then wooden bridge and tower, and spoiled the church and priory, and then marched off. This city has also been several times destroyed by fire, viz. in 1130, on June 3. in 1137, and in 1177; after which it is said to have continued desolate till 1225, when it was repaired, ditched, and walled round. In the Saxon heptarchy there were three mints in Rochester, two for the king and one for the bishop. In 1281, its old wooden bridge was carried off by the ice, in a sudden thaw after a frost which had made the Medway passable on foot. Another was built in the reign of Richard II. but pulled down again, on the rumour of an invasion from France. It was afterwards restored, but so often subject to expensive repairs, by reason of the rapid course of the river under it, as well as the great breadth and depth of it, that in the reign of Edward III. it was resolved to build a new bridge of stone; and the same was begun, and in a manner completed, at the expence of Sir John Cobham and Sir Robert Knolles, Edward III.'s generals, out of the spoils they had taken in France. It has 21 arches. The town is governed by a mayor, recorder, 12 aldermen, 12 common-councilmen, a town-clerk, three serjeants at mace, and a water-bailiff. To its cathedral belong a dean and six prebendaries. Gundulph's tower stands on the north side of the cathedral, and is supposed to have been built by the bishop, as a place of security for the treasures and archives of that church and see. Some suppose it to have been intended for a bell tower, and others for an ecclesiastical prison; but whatever might be its destination, its machicolations, its loop-hole windows, and the thickness of its walls, shows strength and defence were considered as necessary. This tower was 60 feet high, but some part has lately fallen down; the walls are six feet thick, and contain within them an area of 20 feet square: it was divided into five floors or stories of unequal height, and had a communication with the upper part of the church, by means of an arch or bridge, the steps of which are still visible. It is supposed to have been erected after the cathedral was built. For the maintenance of its bridge, certain lands are tied down by parliament, to which it has sent members from the first. The town-house, built in the year 1687, for the courts, assizes, and sessions, and the charity-school, are two of the best public buildings here.—A mathematical school was founded here, and an alms-house for lodging six poor travellers every night, and allowing them 4 d. in the morning when they depart, except persons contagiously diseased, rogues, and proctors. In the summer here are always six or eight lodgers, who are admitted by tickets from the mayor. The Roman Watling-street runs through this town from Shooters-Hill to Dover. The mayor and citizens hold what is called an admiralty-court once a-year for regulating the oyster-fishery in the creeks and branches of the Medway that are within their jurisdiction, and for prosecuting the cable-hangers, as they are called, who dredge and fish for oysters without being free, by having served seven years apprenticeship to a fisherman who is free of the fishery. Every licensed dredger pays 6s. 8d. a-year to the support of the courts, and the fishery is now in a flourishing way. Part of the castle is kept in repair, and is used as a magazine, where a party of soldiers do constant duty. The bridge was repaired in 1744, and pallisadoed with new iron rails. Rochester contains about 700 houses, and 2000 inhabitants. It consists of only one principal street, which is wide, and paved with flints. The houses are generally well built with brick, and inhabited by tradesmen and innkeepers. It has also four narrow streets; but no sort of manufactory is carried on here. Stroud is at the west end of this place, and Chatham at the east. It is 27 miles north-west by west of Canterbury, and 30 south-east by east of London. Long. 0. 36. E. Lat. 51. 23. N.

Rochester (earl of). See Wilmot.

ROCK, a large mass or block of hard stone rooted in the ground. See Mountain, Petrifaction, and Stone.

Rock, in ornithology, a species of Vulture.

Rock Basins are cavities or artificial basins of different sizes, from six feet to a few inches diameter, cut in the surface of the rocks for the purpose, as is supposed, of collecting the dew and rain pure as it descended from the heavens, for the use of ablutions and purifications, prescribed in the druidical religion; these, especially the dew, being deemed the purest of all

Rock, Rocket.

ſtitis. There are two ſorts of theſe baſons, one with lips or communications between the different baſons, the other ſimple cavities. The lips as low as the bottom of the baſons, which are horizontal, and communicate with one ſomewhat lower, is contrived that the contents will by a gradual deſcent through a ſucceſſion of baſons either to the ground, or into a veſſel ſet to receive it. The baſons without lips might be intended for reſervoirs to preſerve the rain or dew in its original purity without touching any other veſſel, and was perhaps uſed for the druid to drink, or wash his hands, previous to officiating at any high ceremony, or else to mix with their ambrosia.

Some of theſe baſons are ſo formed as to receive the head and part of the human body; one of this kind is found on a rock called king Arthur's bed, in the parish of North Hall in Cornwall, where are also others, called by the country people Arthur's troughs, in which they ſay he uſed to feed his dogs.

Rock-Cryſtal, in natural hiſtory, otherwiſe called *ſpring-cryſtal*, a name given to the third order of cryſtals, from their being affixed to a rock or other ſolid body. See CRYSTAL.

Rock Salt. See SALT.

Rock-Oil. See PETROLEUM.

Rock Fiſh. See GOBIUS.

ROCKET, an artificial fire-work, conſiſting of a cylindrical caſe of paper, filled with a compoſition of certain combuſtible ingredients; which, being tied to a ſtick, mounts into the air, and then burſts. See PYROTECHNY.

Theory of the Flight of Sky Rockets. Mariotte takes the riſe of rockets to be owing to the impulſe or reſiſtance of the air against the flame. Dr Desaguliers accounts for it otherwiſe.

Conceive the rocket to have no vent at the choak, and to be ſet on fire in the conical bore; the conſequence will be, either that the rocket would burst in the weakeſt place, or, if all its parts were equally ſtrong, and able to ſuſtain the impulſe of the flame, the rocket would burn out immoveable. Now, as the force of the flame is equable, ſuppoſe its action downwards, or ſent upwards, ſufficient to lift 40 pounds. As theſe forces are equal, but their directions contrary, they will deſtroy each other's action.

Imagine then the rocket opened at the choak: by this means the action of the flame downwards is taken away, and there remains a force equal to 40 pounds acting upwards, to carry up the rocket, and the ſtick it is tied to. Accordingly, we find that if the compoſition of the rocket be very weak, ſo as not to give an impulſe greater than the weight of the rocket and ſtick, it does not riſe at all; or if the compoſition be ſlow, ſo that a ſmall part of it only kindles at firſt, the rocket will not riſe.

The ſtick ſerves to keep it perpendicular; for if the rocket ſhould begin to ſtumble, moving round a point in the choak, as being the common centre of gravity of rocket and ſtick, there would be ſo much friction against the air by the ſtick between the centre and the point, and the point would beat againſt the air with ſo much velocity, that the friction of the medium would reſtore it to its perpendicularity.

When the compoſition is burnt out, and the impulſe ceaſed, the common centre of gravity is brought lower towards the middle of the ſtick; by which means the velocity of the point of the ſtick is decreaſed, and that of the point of the rocket increaſed; ſo that the whole will tumble down, with the rocket-end foremoſt.

All the while the rocket burns, the common centre of gravity is ſhifting and getting downwards, and ſtill the ſlower and the lower as the ſtick is the lighter, ſo that it ſometimes begins to tumble before it be burnt out; but when the ſtick is a little too heavy, the weight of the rocket bearing a leſs proportion to that of the ſtick, the common centre of gravity will not get ſo low but that the rocket will riſe ſtraight, though not ſo faſt.

ROCKET, in botany. See BRASSICA.

ROCKINGHAM, a town in Northamptonſhire, in England, 87 miles from London, ſtands on the river Welland. It has a charity-ſchool, a market on Thurſday, and a fair on Sept. 8. for five days. Its foreſt was reckoned one of the largeſt and richeſt of the kingdom, in which William the Conqueror built a caſtle; it extended, in the time of the ancient Britons, almoſt from the Welland to the Nen, and was noted formerly for iron-works, great quantities of flags, *i. e.* the refuſe of the iron-ore, being met with in the adjacent fields. It extended, according to a ſurvey in 1641, near 14 miles in length, from the weſt end of Middleton-Woods to the town of Mansford, and five miles in breadth, from Brigſtock to the Welland; but is now dismembered into parcels, by the interpoſition of fields and towns, and is divided into three bailiwicks. In ſeveral of its woods a great quantity of charcoal is made of the tops of trees, of which many waggon-loads are ſent every year to Peterborough. There is a ſpacious plain in it called Rockinghamſhire, which is a common to the four towns of Cottingham, Rockingham, Corby, and Gretton. King William Rufus called the council here of the great men of the kingdom. W. Long. 0. 46. N. Lat. 52. 32.

ROCKING-STONES. See *Rocking-Stones*.

ROCKOMBOLE. See ALLIUM.

ROD, a land meaſure of 16 feet and a half; the ſame with perch and pole.

Black Rod. See *Uſher of the Black Rod*.

Fiſhing Rod, a long taper rod or wand, to which the line is faſtened for angling. See *FISHING-Rod*.

RODNEY (George Bridges), Lord Rodney, was born in the year 1718. Of the place of his birth and the rank of his anceſtors we have not been able to procure any well authenticated account. His father was a naval officer; and commanding, at the time of his ſon's birth, the yacht in which the king, attended by the Duke of Chandos, was paſſing to or from Hanover, he asked and obtained leave to have the honour of calling his infant ſon *George Bridges*. The royal and noble godfathers adviſed Captain Rodney to educate his boy for his own profeſſion, promiſing, as we have been told, to promote him as rapidly as the merit he ſhould diſplay and the regulations of the navy would permit.

Of young Rodney's early exertions in the ſervice of his country, nothing, however, is known to the writer of this abſtract, nor, indeed, any thing of ſufficient importance to be inſerted in articles ſo circumſcribed as all our biographical ſketches muſt be, till 1751, when we find him, in the rank of a Commodore, ſent out to make

Rocke ll Rodne

make accurate discoveries respecting an island which was supposed to lie about 50° N. L. and about 300 leagues W. of England: but he returned without having seen any such island as that which he was appointed to survey. In the war which soon followed this voyage of discovery, he was promoted to the rank of a rear-admiral, and was employed to bombard Havre-de-Grace; which in 1759 and 1760 he considerably damaged, together with some shipping. In 1761 he was sent on an expedition against Martinico, which was reduced in the beginning of the year 1762, and about the same time St Lucia surrendered to Captain Harvey. Both these islands were restored to the French at the peace of 1763.

In reward for his services, he was created a knight of the Bath; but being inattentive, as many seamen are, to the rules of economy, his circumstances became so embarrassed that he was obliged to fly from his country, with very slight hopes of ever being able to return. He was in France when the ill-advised policy of that court made them take a decided part with America against Great Britain; and it is said that some men in power, no strangers to the desperate state of Sir George's affairs, offered him a high command in the French navy, if he would carry arms against his own country. This offer he rejected with becoming indignation. Soon after this gallant behaviour, the Duke de Chartres, afterwards the infamous Orleans, told Sir George that he was to have a command in the fleet which was to be opposed to that under the command of his countryman Mr Keppel; and with an insulting air asked him what he thought would be the consequence of their meeting? "That my countryman will carry your Highness with him to learn English," was the high-spirited reply.—When the divisions, which the mutual recriminations of Admiral Keppel and Sir Hugh Palliser excited in the British navy, made it difficult for the ministry to procure experienced, and at the same time popular, commanders for their fleets, Lord Sandwich wrote to Sir George Bridges Rodney, offering him a principal command: but the difficulty was for the veteran to find money to pay his accounts in France, so that he might be permitted to leave that kingdom. The money, it has been repeatedly affirmed, was advanced to him by the courtiers whose offer he had before indignantly rejected. He arrived, therefore, in England, and was again employed in the service of his country. His first exploit after his appointment was in January 1780, when he took 19 Spanish transports bound to Cadiz from Bilboa, together with a 64 gun ship and 5 frigates, their convoy. On the 16th of the same month he fell in with the Spanish fleet, consisting of 11 sail of the line, under the command of Don Juan de Langara; of which one was blown up during the engagement, five were taken and carried into Gibraltar, among which was the admiral's ship, and the rest were much shattered. In April the same year, he fell in with the French fleet, under the command of Admiral Guichen, at Martinico, whom he obliged to fight, and whom he completely beat; though from the shattered state of his own fleet, and the unwillingness of the enemy to risk another action, he took none of their ships. The successful efforts of our gallant admiral during the year 1780 were generally applauded through the nation. He received the thanks of both Houses of Parliament, and addresses of thanks from various parts of Great Britain, and the islands to which his victories were more particularly serviceable. In December the same year, he made an attempt, together with General Vaughan, on St Vincent's, but failed. In 1781, he continued his exertions, with much success, in defending the West India islands; and, along with the above named general, he conquered St Eustatius; on which occasion his conduct to the inhabitants has been much, though perhaps unjustly, censured. The island was certainly a nest of contraband traders.

On the 12th of April 1782, he came to a close action with the French fleet under Count de Grasse; during which he sunk one ship and took five, of which the admiral's ship, the Ville de Paris, was one. The following year brought peace; but, as a reward for his numerous services, he had a grant of L. 2000 a year for himself and his two successors. He had long before been created a baronet, was rear-admiral of Great Britain, and at length was justly promoted to the peerage, by the title of Baron Rodney of Stoke, Somersetshire, and made vice admiral of Great Britain. He was once also governor of Greenwich Hospital.

Lord Rodney had been twice married; first to the sister of the Earl of Northampton, and secondly to the daughter of John Clies, Esq; with whom he did not reside for several years before his death, which happened on the 24th of May 1792. He was succeeded in title and estates by his son George, who married in 1781 Martha, daughter of the Right Hon. Alderman Harley, by whom he has issue.

Of the private life of Lord Rodney we know but little. His attention to the wants of the seamen, and the warrant officers serving under him, indicated that humanity which is always allied to true courage. He has often, from the number of dishes which his rank brought to his table, selected something very plain for himself, and sent the rest to the midshipmen mess.—His public transactions will transmit his name with honour to posterity; his bravery was unquestionable, and his success has been seldom equalled. It has, indeed, been very generally said, that his skill in naval tactics was not great, and that he was indebted to the superior abilities of Capt. Young and Sir Charles Douglas for the manœuvres by which he was so successful against Langara and De Grasse. But, supposing this to be true, it detracts not from his merit. A weak or foolish commander could not always make choice of the ablest officers for his first captains, nor would such a man be guided by their advice.

Whatever was Lord Rodney's skill in the science of naval war, or however much he may have been beholden to the counsels of others, he certainly possessed himself the distinguished merit of indefatigable exertion; for he never omitted any thing within the compass of his power to bring the enemy to action. He therefore unquestionably deserves the respect and the gratitude of his country. In the year 1763 the House of Assembly in Jamaica voted L. 1000 towards erecting a marble statue to him, as a mark of their gratitude and veneration for his gallant services, so timely and gloriously performed for the salvation of that island in particular, as well as the whole of the British West India islands and trade in general. We have not, however, heard of any such tribute being paid to him in Britain either before or since his death.

ROL,

ROE, the feed or fpawn of fifh. That of the male fifhes is ufually diftinguifhed by the name of *foft roe*, or *milt*; and that of the female, *hard roe*, or *fpawn*. So inconceivably numerous are thefe ovula or fmall eggs, that M. Petit found 342,144 of them in a carp of 18 inches; but M. Lieuwenhock found in a carp no more than 211,629. This laft gentleman obferves, that there are four times this number in a cod; and that a common one contains 9,344,000 eggs.

Roe, in zoology. See Cervus.

ROELLA, in botany: A genus of the monogynia order, belonging to the pentandria clafs of plants; and in the natural method ranking under the 29th order, *Campanaceæ*. The corolla is funnel-fhaped, with its bottom fhut up by ftaminiferous valvules; the ftigma is bifid; the capfule bilocular, and cylindrical inferior.

ROGA, in antiquity, a prefent which the emperors made to the fenators, magiftrates, and even to the people; and the popes and patriarchs to their clergy. Thefe rogæ were diftributed by the emperors on the firft day of the year, on their birth-day, or on the *natalis dies* of the cities; and by the popes and patriarchs in paffion-week. Roga is alfo ufed for the common pay of the foldiers.

ROGATION (ROGATIO), in the Roman jurifprudence, a demand made by the confuls or tribunes of the Roman people, when a law was propofed to be paffed. *Rogatio* is alfo ufed for the decree itfelf made in confequence of the people's giving their affent to this demand; to diftinguifh it from a *fenatus confultum*, or decree of the fenate.

Rogation-Week, the week immediately fucceeding Whitfunday; fo called from the three feafts therein, viz. on Monday, Tuefday, and Wednefday.

ROGER DE HOVEDEN, a learned man of the 13th century, was born in Yorkfhire, moft probably at the town of that name, now called *Howden*, fome time in the reign of Henry I. After he had received the firft parts of education in his native country, he ftudied the civil and canon law, which were then become the moft fafhionable and lucrative branches of learning. He became domeftic chaplain to Henry II. who employed him to tranfact feveral ecclefiaftical affairs; in which he acquitted himfelf with honour. But his moft meritorious work was, his Annals of England, from A. D. 731, when Bede's Ecclefiaftical Hiftory ends, to A. D. 1202. This work, which is one of the moft voluminous of our ancient hiftories, is more valuable for the fincerity with which it is written, and the great variety of facts which it contains, than for the beauty of its ftyle, or the regularity of its arrangement.

ROGUE, in law, an idle fturdy beggar; who by ancient ftatutes is for the firft offence called a *rogue of the firft degree*, and punifhed by whipping, and boring through the griftle of the right ear with a hot iron; and for the fecond offence, is termed a *rogue of the fecond degree*, and, if above 18 years of age, ordered to be executed as a felon.

ROHAN (Peter de), Chevalier de Gié, and marfhal of France, better known by the name of *Marfhal de Gié*, was the fon of Louis de Rohan, the firft of the name, lord of Guémené and Montauban, and defcended of one of the moft ancient and moft illuftrious families of the kingdom. The family of Rohan, before the Revolution, held the rank of prince in France in confequence of deriving its origin from the firft fovereigns of Brittany, and clearly admitted by the dukes of Brittany themfelves in the ftates general of that province held in 1088. The houfe of Rohan had ftill another advantage, which was common to it with very few families, even the moft diftinguifhed among the princes, namely, that inftead of having been aggrandifed by the wealth procured from alliances, it had held in itfelf for feven centuries the largeft poffeffions of any family in the kingdom.

One of the moft diftinguifhed branches of this family was Peter, the fubject of the prefent article. Louis XI. rewarded his bravery with the ftaff of marfhal of France in 1475. He was one of the four lords who governed the kingdom during the indifpofition of that prince at Chinon in 1484. Two years afterwards he oppofed the attacks of the archduke of Auftria upon Picardy. He commanded the van-guard at the battle of Fornoue in 1495, and fignalized himfelf much in that engagement. His bravery procured him the countenance and confidence of Louis XII. who appointed him his prime counfellor, and general of the army in Italy; but thefe advantages he loft, by incurring the difpleafure of Anne of Brittany the queen.

The marfhal had ftopped fome of her equipage on the road to Nantz; for which that vindictive princefs prevailed on her hufband to enter into a procefs againft him before the parliament of Toulouife, at that time the moft rigorous and fevere in the kingdom. He was on the 15th of February 1506 found guilty, banifhed from the court, and deprived of the privileges and emoluments of his office for five years. The expence of this profecution amounted to more than 31,000 livres, and it did no honour either to the king or the queen. If indeed it be true, that the queen was never fo much delighted as with the humiliation of her enemies, fhe had good reafon to be fatisfied here. John of Authon, who hath entered into a pretty full detail of this affair, reports that Gié, being removed to the *Chateau de Dreux*, became an object of ridicule to the witneffes who had fworn againft him. He wore a long white beard, and, quite full of the thoughts of his difgrace, took it on one occafion in his hands and covered his face with it. An ape, belonging to Alain d'Albret, count of Dreux, jumped from a bed where his mafter was repofing himfelf, and attacked the beard of Gié, who, with fome difficulty, extricated himfelf. This fcene not only occafioned much laughter to the whole company who were prefent, but likewife became inftantly the fubject of the farces and mummeries which were then acting in France. Even the fchool-boys made a repreftentation of it, where, alluding to the name of the queen, they faid, that there was a marfhal who wifhed to fhoe an afs (*un ane*), but that he received fuch a blow with the foot, as threw him over the wall into the garden. Marefchal de Gié died at Paris, the 22d April 1513, perfectly difgufted with courts and grandeur.

ROHAN (Henry duke of), peer of France, and prince of Leon, was born at the Chateau de Blein in Brittany in 1579. Henry IV. under whofe eyes he gave diftinguifhed proofs of his bravery at the fiege of Amiens, when only 16 years of age, loved him with as much affection as if he had been his own fon. After the death of Henry, he became chief of the Calvinifts in

in France; and was equally formidable for his genius as his ſword. In defence of the civil and religious rights of his party, he maintained three wars againſt Louis XIII. The firſt, which terminated to the advantage of the Proteſtants, broke out when that prince wiſhed to eſtabliſh the Romiſh religion in Le Bearn: the ſecond, becauſe of the ſiege which Cardinal De Richlieu cauſed to be laid to Rochelle: and the third, when that place was beſieged a ſecond time. The conſequences of this war are ſufficiently known: Rochelle ſurrendered: and the duke de Rohan perceiving, that after the taking of this place, the majority of his party were endeavouring to make up matters with the court, ſucceeded in procuring for them a general peace in 1629, upon very honourable and advantageous terms. The only ſacrifice of importance which the Huguenots were obliged to make, was their fortifications; which put it out of their power to renew the war. Some factious perſons, diſſatisfied with ſeeing their fortreſſes fall into their enemies hands, were ready to accuſe their general of having ſold them. This great man, undeſerving of ſuch odious ingratitude, preſented his breaſt to theſe enraged malcontents, and ſaid, "Strike, ſtrike! I wiſh to die by your hands, after I have hazarded my life in your ſervice." The peace of 1629 having extinguiſhed the flame of civil war, the duke de Rohan, no longer of uſe to his party, and become diſagreeable at court, retired to Venice. There is a very particular anecdote of him, extracted from the Memoirs of the ducheſs of Rohan, Margaret of Bethune, daughter of the famous Sully. Whilſt the duke de Rohan was at Venice, a propoſal was made to him from the Porte, that for 200,000 crowns, and an annual tribute of 20,000, the Grand Signior would give him the iſland of Cyprus, and fully inveſt him with the dignity and prerogatives of king. The duke was warmly inclined to comply with this propoſal, and to ſettle in the iſland the Proteſtant families of France and Germany. He negociated this buſineſs at the Porte by means of the intervention of the patriarch Cyril, with whom he had much correſpondence; but different circumſtances, and in particular the death of the patriarch, occurred to break off the treaty. The republic of Venice choſe Rohan for their commander in chief againſt the Imperialiſts; but Louis XIII. took him from the Venetians, and ſent him ambaſſador into Swiſſerland, and into the Griſons. He wiſhed to aſſiſt theſe people in bringing back La Valteline under their obedience, the revolt of which the Spaniards and Imperialiſts encouraged. Rohan, being declared general of the Griſons, after many victories, drove the German and Spaniſh troops entirely from La Valteline in 1633. He defeated the Spaniards again in 1636 at the banks of the lake of Côme. France, not thinking it proper to withdraw her troops, the Griſons roſe up in arms, and the duke de Rohan, not ſatisfied with the conduct of the court, entered into a ſpecial treaty with them the 28th March 1637. This hero, fearing the reſentment of cardinal de Richlieu, retired to Geneva, with a view to join his friend the duke of Saxe-Weimar, who wiſhed him to undertake the command of his army, then ready to engage the Imperialiſts near Rhinfield. Although he declined this honour, yet he took the command of the regiment of Naſſau, with which he threw the enemy into confuſion; but was himſelf wounded, February 28. 1683, and died of his wounds the 13th of April following, at the age of 59. He was interred May 27th, in the church of St Pierre in Geneva, where there is a magnificent monument of marble erected to his memory, having on it the moſt illuſtrious actions of his life. The duke de Rohan was one of the greateſt generals of his time, equal to the princes of Orange, and capable, like them, of ſettling a commonwealth; but more zealous than they for religion, or at leaſt appearing to be ſo. He was vigilant and indefatigable, not allowing himſelf any pleaſures which might take off his attention from his neceſſary employments, and well qualified for being the head of a party; a poſt very difficult to retain, and in which he had to fear equally from his enemies and his friends. It is in this light that Voltaire has viewed this illuſtrious character, when he compoſed the following verſe:

Avec tous les talens le Ciel l'avoit fait naître:
Il agit en Héros; en Sage il écrivit.
Il fut même grand homme en combattant ſon Maître,
Et plus grand lorſqu'il le ſervit.

His military virtues were much heightened by the ſweetneſs of his diſpoſition, his affable and courteous manners, and by a generoſity which had few examples. Neither ambition, pride, nor a view of gain, could ever be traced in his character. He was wont to ſay, that "true glory and a zeal for the public good never dwelt where ſelf-intereſt reigned." Rohan had always a particular regard for Henry the Fourth: "Truly (ſaid he, ſometimes after the death of that prince) when I think of him, my heart is ready to break. A wound received in his preſence would have afforded me more ſatisfaction than now to gain a battle. I would have valued an encomium from him in this art, of which he was the greateſt maſter of his time, more than than the united praiſes of all the commanders now living." He wrote ſeveral intereſting performances: 1. The Intereſts of Princes, printed at Cologne in 1666, in 12mo: in which work he fully examines the public intereſts of all the princes of Europe. 2. The Perfect General, or an abridgement of the wars from Cæſar's Commentaries, in 12mo. In this he makes it appear, that a knowledge of the tactics of the ancients might be of much uſe to the moderns. 3. A Treatiſe on the Corruption of the ancient Militia. 4. A Treatiſe on the Government of the Thirteen Provinces. 5. Memoirs; the beſt edition of which is in 2 vols 12mo. They contain the hiſtory of France from 1610 to 1629. 6. A Collection of ſome Political Diſcourſes on State Affairs, from 1612 to 1629, 8vo, Paris, 1644, 1693, 1755; with the Memoirs and Letters of Henry Duke de Rohan relative to the war of La Valteline, 3 vols 12mo, Geneva, 1757. This was the firſt edition which appeared of theſe curious memoirs: We owe it to the great attention and diligence of M. le Baron de Zurlauben, who publiſhed them from different authentic manuſcripts. He likewiſe ornamented this edition with geographical, hiſtorical, and genealogical notes, and a preface, which contains an abridged, but highly intereſting life, of the duke de Rohan, author of the memoirs. The abbé Pérau has alſo written a life of him, which occupies the 21ſt and 22d volumes of the Hiſtory of the Illuſtrious Men of France. Some want of ſpirit might be excuſed in the detail of wars finiſhed upwards of 140

years ago; yet the memoirs of the duke de Rohan still afford considerable pleasure in the perusal. He tells his story with humour, with sufficient exactness, and in such a style as procures the confidence of the reader.

ROHAULT (James), a celebrated Cartesian philosopher, was the son of a merchant of Amiens, where he was born in 1620. He became well skilled in the mathematics, and taught them at Paris, where he became acquainted with M. Clerselier, an advocate, who gave him his daughter in marriage. Rohault also taught philosophy in the same city with uncommon applause. He there improved the arts, and gave excellent lectures to the artists and workmen. He died at Paris in 1675. He wrote, in French, 1. A Treatise on Natural Philosophy. 2. The Elements of the Mathematics. 3. A Treatise on Mechanics, which is very curious. 4. Philosophical Conversations; and other works. His Physics have been translated into Latin, by Dr Samuel Clarke, with notes, in which the Cartesian errors are corrected upon the Newtonian system.

ROLANDRA, in botany: A genus of the polygamia segregata order, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, *Composite*. The common calyx consists of distinct *flosculi*, between each of which are short *squamæ*, the whole forming a round head. The partial calyx is bivalved. The corolla is small and funnel-shaped, the tube small as a thread, the *laciniæ* short and acute. The stamina are five; the style bifid. It has no other seed vessel except the partial calyx, which contains a long three-sided seed. Of this there is only one species, viz. the Argentea; a native of the West Indies, and found in copses and waste lands.

ROLL, in manufactories, something wound and folded up in a cylindrical form.

Few stuffs are made up in rolls, except satins, gawses, and crapes; which are apt to break, and take plaits not easy to be got out, if folded otherwise. Ribbons, laces, gallons, and paduas of all kinds, are also thus rolled.

A roll of tobacco, is tobacco in the leaf, twisted on the mill, and wound twist over twist about a stick or roller. A great deal of tobacco is sold in America in rolls of various weights; and it is not till its arrival in England, Spain, France, and Holland, that it is cut.

A roll of parchment, properly denotes the quantity of 60 skins.

The ancients made all their books up in the form of rolls; and in Cicero's time the libraries consisted wholly of such rolls.

ROLL, in law, signifies a schedule or parchment which may be rolled up by the hand into the form of a pipe.

In these schedules of parchment, all the pleadings, memorials, and acts of court, are entered and filed by the proper officer; which being done, they become records of the court. Of these there are in the exchequer several kinds, as the great wardrobe roll, the cofferer's roll, the subsidy-roll, &c.

Roll is also used for a list of the names of persons of the same condition, or of those who have entered into the same engagement. Thus a court-roll of a manor, is that in which the names, rents, and services, of each tenant are copied and enrolled.

Calves-head ROLL, a roll in the two temples, in which every bencher is taxed yearly at 2 s. every barrister at 1 s. 6 d. and every gentleman under the bar at 1 s. to the cook and other officers of the house, in consideration of a dinner of calves-heads provided in Easter-term.

Muster-Roll, that in which are entered the soldiers of every troop, company, regiment, &c. As soon as a soldier's name is written down on the roll, it is death for him to desert.

Rolls-Office, is an office in Chancery-lane, London, appointed for the custody of the rolls and records in chancery.

Master of the Rolls. See *Master of the Rolls*.

Rider-Roll, a schedule of parchment frequently sewed or added to some part of a roll or record.

Rolls of Parliament, are the manuscript registers or rolls of the proceedings of our ancient parliaments, which before the invention of printing were all engrossed on parchment, and proclaimed openly in every county. In these rolls are also contained a great many decisions of difficult points of law, which were frequently in former times referred to the decision of that high court.

ROLL, or *Roller*, is also a piece of wood, iron, brass, &c. of a cylindrical form, used in the construction of several machines, and in several works and manufactures.

Thus in the glass manufacture they have a running-roll, which is a thick cylinder of cast brass, which serves to conduct the melted glass to the end of the table on which large looking-glasses, &c. are cast.

Founders also use a roll to work the sand which they use in making their moulds.

The presses called *calendars*, as serving to calendar stuffs withal, consist, among other essential parts, of two rollers. It is also between the two rollers that the waves are given to silks, mohairs, and other stuffs proper to be tabbied.

Impressions from copper-plates are also taken by passing the plate and paper between two rollers. See *Rolling-press* PRINTING.

Rolls, in slatting-mills, &c. are two iron instruments of a cylindrical form, which serve to draw or stretch out plates of gold, silver, and other metals.

Rolls, in sugar-works, are two large iron barrels which serve to bruise the canes, and to express the juice. These are cast hollow, and their cavities are filled up with wood, the cylinders of which are properly the rollers.

ROLLER, in surgery, a long and broad bandage, usually of linen-cloth, rolled round any part of the body, to keep it in, or dispose it to a state of health.

ROLLI (Paul), was born at Rome in 1687. He was the son of an architect, and a pupil of the celebrated Gravina, who inspired him with a taste for learning and poetry. An intelligent and learned English lord having brought him to London, introduced him to the royal family as a master of the Tuscan language. Rolli remained in England till the death of queen Caroline his protector, and the patroness of literature in general. He returned to Italy in 1747, where he died in 1767, in the 80th year of his age, leaving behind him a very curious collection in natural history, &c. and a valuable and well chosen library. His principal works first appeared

peared in London in 1735, in 8vo. They consist of odes in blank verse, elegies, songs, and other things, after the manner of Catullus. There is likewise, by him, a Collection of Epigrams, printed at Florence in 1776, in 8vo, and preceded with his life by the abbé Fondini. What Martial said of his own Collection may be said of this, "That there are few good, but many indifferent or bad, pieces in it." Rolli, however, bore the character of one of the best Italian poets of his age. During his stay in London, he procured editions of several authors of his own country. The principal of these were, the Satires of Ariosto, the Burlesque Works of Berni, Varchi, &c. 2 vols, in 8vo, which possess considerable merit. The Decameron of Boccace, 1727, in 4to and folio; in which he has faithfully copied the celebrated and valuable edition published by the *Juntes* in 1527: and, lastly, of the elegant Lucretia of Marchetti, which, after the manuscript was revised, was printed at London in 1717, in 8vo, through the influence and attention of Rolli. This edition is beautiful; but the work is thought of pernicious tendency. There are likewise, by him, translations into Italian verse of the Paradise Lost of Milton, printed at London in folio in 1735; and of the Odes of Anacreon, London 1739, in 8vo.

ROLLIN (Charles), a justly celebrated French writer, was the son of a cutler at Paris, and was born there on the 30th of January 1661. He studied at the college Du Plessis, in which he obtained a bursary through the interest of a Benedictine monk of the White Mantle, whom he had served at table, and who discovered in him some marks of genius. Here he acquired the regard of M. Gobinet, principal of that college, who had a particular esteem for him. After having studied humanity and philosophy at the college of Du Plessis, he applied to divinity three years at the Sorbonne; but he did not prosecute this study, and never rose in the church higher than to the rank of a tonsured priest. He afterwards became professor of rhetoric in the same college; and, in 1688, succeeded Horsan, his master, as professor of eloquence, in the royal college. No man ever exercised the functions of it with greater eclat: he often made Latin orations, to celebrate the memorable events of the times; and frequently accompanied them with poems, which were read and esteemed by every body. In 1694, he was chosen rector of the university; and continued in that office two years, which was then a great mark of distinction. By virtue of his office, he spoke the annual panegyric upon Louis XIV. He made many very useful regulations in the university; and particularly revived the study of the Greek language, which was then much neglected. He substituted academical exercises in the place of tragedies; and introduced the practice which had been formerly observed, of causing the students to get by heart passages of Scripture. He was a man of indefatigable attention; and trained innumerable persons, who did honour to the church, the state, and the army. The first president Portail was pleased one day to reproach Rollin in a jocular strain, as if he exceeded even himself in doing business: to whom Rollin replied, with that plainness and sincerity which was natural to him, "It becomes you well, Sir, to reproach me with this; it is this habit of labour in me which has distinguished you in the place of advocate-general, which has raised you to that of first president: you owe the greatness of your fortune to me."

Upon the expiration of the rectorship, cardinal Noailles engaged him to superintend the studies of his nephews, who were in the college of Laon; and in this office he was agreeably employed, when, in 1699, he was with great reluctance made coadjutor to the principal of the college of Beauvais. This college was then a kind of desert, inhabited by very few students, and without any manner of discipline: but Rollin's great reputation and industry soon re-peopled it, and made it that flourishing society it has ever since continued. In this situation he continued till 1712; when the war between the Jesuits and the Jansenists drawing towards a crisis, he fell a sacrifice to the prevalence of the former. Father le Tellier, the king's confessor, a furious agent of the Jesuits, infused into his master prejudices against Rollin, whose connections with cardinal de Noailles would alone have sufficed to have made him a Jansenist; and on this account he lost his share in the principality of Beauvais. No man, however, could have lost less in this than Rollin, who had every thing left him that was necessary to make him happy; retirement, books, and enough to live on. He now began to be employed upon Quinctilian; an author he justly valued, and saw neglected not without uneasiness. He retrenched in him whatever he thought rather curious than useful for the instruction of youth; he placed summaries or contents at the head of each chapter; and he accompanied the text with short select notes. His edition appeared in 1715, in 2 vols 12mo, with an elegant preface, setting forth his method and views.

In 1710, the university of Paris, willing to have a head suitable to the importance of their interests in the then critical conjuncture of affairs, chose Rollin again rector: but he was displaced in about two months by a lettre de cachet. The university had presented to the parliament a petition, in which it protested against taking any part in the adjustment of the late disputes; and their being congratulated in a public oration by Rollin on this step, occasioned the letter which ordered them to choose a rector of more moderation. Whatever the university might suffer by the removal of Rollin, the public was probably a gainer; for he now applied himself to compose his treatise upon the Manner of Studying and Teaching the Belles Lettres, which was published, two volumes in 1726, and two more in 1728, 8vo.

This work has been justly esteemed for the sentiments of religion which animate its author, whose zeal for the public good prompted him to select the choicest passages of Greek and Latin authors. The style is sufficiently elegant, but the language on some occasions is not remarkable for delicacy; and in the book altogether there is neither much order nor depth. The author has indeed spoken of common things agreeably, and has spoken as an orator on subjects which demanded the investigation of the philosopher. One can scarcely reduce any thing in him to principles.—For example, the three species of eloquence; the simple, the temperate, and the sublime, can scarcely be understood from him when we read that the one resembles a frugal table; the second a beautiful ruin, with green wood growing on

on its banks; and the third thunder and an impetuous river which overthrows every thing that opposes it.

The work, however, has been exceedingly successful, and justly so; and its success encouraged its author to undertake another work of equal use and entertainment; his *Histoire Ancienne*, &c. or "Ancient History of the Egyptians, Carthaginians, Assyrians, Babylonians, Medes and Persians, Macedonians, and Greeks," which he finished in 13 vols 8vo. and published between 1730 and 1738. M. Voltaire, after having observed that Rollin was "the first member of the university of Paris who wrote French with dignity and correctness," says of this work, that "though the last volumes, which were written in too great a hurry, are not equal to the first, it is nevertheless the best compilation that has yet appeared in any language; because it is seldom that compilers are eloquent, and Rollin was remarkably so." This is perhaps saying too much. There are indeed in this work some passages very well handled; but they are only such as he had taken from the ancient authors, in doing justice to whom he was always very happy. The reader will easily discover in this work the same attachment to religion, the same desire for the public good, and the same love of virtue, which appears in that on the Belles Lettres. But it is to be lamented that his chronology is neither exact nor corresponding; that he states facts inaccurately; that he has not sufficiently examined the exaggerations of ancient historians; that he often interrupts the most solemn narrations with mere trifles; that his style is not uniform; and this want of uniformity arises from his borrowing from writers of a modern date 40 or 50 pages at a time. Nothing can be more noble and more refined than his reflections; but they are strewed with too sparing a hand, and want that lively and laconic turn on account of which the historians of antiquity are read with so much pleasure. He transgresses the rule which he himself had established in his Treatise on Studies. "The precepts which have a respect to manners (says he) ought, in order to make an impression, to be short and lively, and pointed like a dart. That is the most certain method of making them enter and remain on the mind." There is a visible negligence in his diction with regard to grammatical custom, and the choice of his expressions, which he does not choose at all times with sufficient taste, although, on the whole, he writes well, and has preserved himself free from many of the faults of modern authors. While the last volumes of his ancient history were printing, he published the first of his Roman History; which he lived to carry on, through the eighth and into part of the ninth, to the war against the Cimbri, about 70 years before the battle of Actium. Mr Crevier, the worthy disciple of Rollin, continued the history to the battle of Actium, which closes the tenth volume; and has since completed the original plan of Rollin in 16 vols 12mo, which was to bring it down from the foundation of the city to the reign of Constantine the Great. This history had not so great success as his Ancient History had. Indeed it is rather a moral and historical discourse than a formal history; for the author does little more than point out some more remarkable events, while he dwells with a sort of prolixity on those parts which furnish him a free field for moralizing. It is alternately diffuse and barren; and the greatest advantage of the work is, that there are several passages from T. Livy translated with great elegance into French. He also published A Latin Translation of most of the Theological Writings relative to the disputes of the Times in which he lived. Rollin was one of the most zealous adherents of deacon Pâris; and before the inclosure of the cemetery of St Medard, this distinguished character might have been often seen praying at the foot of his tomb. This he confesses in his Letters. He published also Lesser Pieces; containing different Letters, Latin Harangues, Discourses, Complimentary Addresses, &c. Paris 1771, 2 vols. 12mo. A collection which might have been contained in one volume, by keeping in only the best pieces. It is notwithstanding valuable for some good pieces which it contains, for the favourable opinion which it exhibits of solid probity, sound reason, and the zeal of the author for the progress of virtue and the preservation of taste. The Latin of Rollin is very correct, and much after the Ciceronian style, and embellished with most judicious thoughts and agreeable images. Full of the reading of the ancients, from which he brought quotations with as much propriety as plenty, he expressed himself with much spirit and excellence. His Latin poems deserve the same eulogium.

This excellent person died in 1741. He had been named by the king a member of the academy of inscriptions and belles lettres in 1701: but as he had not then brought the college of Beauvais into repute, and found he had more business upon his hands than was consistent with a decent attendance upon the functions of an academician, he begged the privileges of a veteran, which were honourably granted him. Nevertheless, he maintained his connections with the academy, attended their assemblies as often as he could, laid the plan of his ancient history before them, and demanded an academician for his censor. Rollin was a man of an admirable composition; very ingenious, consummate in polite learning, of rigid morals, and eminently pious. He was rather too religious; his religion carrying him into the territories of superstition; and he wanted nothing but a mixture of the philosophic in his nature to make him a very perfect character. Nothing could be more benign, more pacific, more sweet, more moderate, than Rollin's temper. He showed, it must be owned, some zeal for the cause of Jansenism; but in all other respects he was exceedingly moderate. The celebrated poet Rousseau conceived such a veneration for him, that he came out of banishment incognito to Paris, on purpose to visit him and pay his respects to him. He looked upon his histories, not only as the best models of the historic kind, but as a complete system of politics and morals, and a most instructive school for princes as well as subjects to learn all their duties in.

Instead of blushing at the lowness of his birth, Rollin on no occasion hesitated to speak of it. "It is from the Cyclops's shop (says he, in a Latin epigram to one of his friends, to whom he had sent a small sword) that I have taken my flight towards Parnassus." He was not, however, without some share of vanity, especially at hearing mention made of his writings, of which the well-timed praises of his adherents had given him a very high opinion. He spoke without any dissimulation what he thought; and his opinions were less the effect of presumption than of openness of heart. He was one of those men who are vain without any mixture of pride.

pride. Rollin ſpoke pretty well; but he had a greater readineſs of writing than ſpeaking; and much more ſatisfaction might be derived from his works than from his converſation. His name became famous throughout Europe; ſeveral princes ſought the honour of his friendſhip. The duke of Cumberland and the prince-royal of Pruſſia (afterwards king) were among the liſt of his admirers. This monarch honoured him with ſeveral letters; in one of which he pays him the following compliment, "Men of your character are fit companions for kings." As to the literary merit of this author, it was, we ſuſpect, too much extolled in his own time, and has been too much undervalued in ours.

ROLLING, the motion by which a ſhip rocks from ſide to ſide like a cradle, occaſioned by the agitation of the waves.

Rolling, therefore, is a ſort of revolution about an imaginary axis paſſing through the centre of gravity of a ſhip: ſo that the nearer the centre of gravity is to the keel, the more violent will be the rolling motion; becauſe the centre about which the vibrations are made is placed ſo low in the bottom, that the reſiſtance made by the keel to the volume of water which it diſplaces in rolling, bears very little proportion to the force of the vibration above the centre of gravity, the radius of which extends as high as the maſt-heads.

But if the centre of gravity is placed higher above the keel, the radius of vibration will not only be diminiſhed, but an additional force to oppoſe the motion of rolling will be communicated to that part of the ſhip's bottom which is below the centre of gravity.

So far as relates to the effect of rolling, when produced by the quality or ſtowage of the ballaſt, and to the manner by which it may be prevented, viz. a change of the quantity or diſpoſition of the ballaſt, we ſhall endeavour to explain under the article TRIM. It may, however, be neceſſary to remark, that the conſtruction of the ſhip's bottom may alſo contribute to diminiſh this movement conſiderably.

Many fatal diſaſters have happened to ſhips ariſing from a violent rolling; as the loſs of the maſts, looſening of the cannon, and ſtraining violently on the decks and ſides, ſo as to weaken the ſhip to a great degree. See PITCHING.

ROLLING-Preſs. See *Rolling-PRESS.*

ROLLING-Tackle, a pulley or purchaſe faſtened to that part of a ſail-yard which is to the windward of the maſt, in order to confine the yard cloſe down to the leeward when the ſail is furled.

It is uſed to prevent the yard from having a great friction againſt the maſt in a high ſea, which would be equally pernicious to both.

ROLLO, the conqueror of Normandy, was a Norwegian duke, baniſhed from his country by Harold Harfagre, who conquered Norway in 870, on account of the piracies he exerciſed. He firſt retired with his fleet among the iſlands of the Hebrides to the north-weſt of Scotland, whither the flower of the Norwegian nobility had fled for refuge ever ſince Harold had become maſter of the whole kingdom. He was there received with open arms by thoſe warriors, who, eager for conqueſt and revenge, waited only for a chief to undertake ſome glorious enterpriſe. Rollo ſetting himſelf at their head, and ſeeing his power formidable, ſailed towards England, which had been long as it were a field open on all ſides to the violence of the northern nations. But the great Alfred had ſome years before eſtabliſhed ſuch order in his part of the iſland, that Rollo, after ſeveral fruitleſs attempts, deſpaired of forming there ſuch a ſettlement as ſhould make him amends for the loſs of his own country. He pretended, therefore, to have had a ſupernatural dream, which promiſed him a glorious fortune in France, and which ſerved at leaſt to ſupport the ardour of his followers. The weakneſs of the government in that kingdom, and the confuſion in which it was involved, were ſtill more perſuaſive reaſons to inſure them of ſucceſs. Having therefore ſailed up the Seine to Rouen, he immediately took that capital of the province, then called *Neuſtria*, and making it his magazine of arms, he advanced up to Paris, to which he laid ſiege in form. This war at length ended in the entire ceſſion of Neuſtria, which Charles the Simple was obliged to give up to Rollo and his Normans in order to purchaſe a peace. Rollo received it in perpetuity to himſelf and his poſterity, as a feudal duchy dependant on the crown of France. A deſcription of the interview between Charles and this new duke gives us a curious picture of the manners of theſe Normans (as they were called by foreigners); for the latter would not take the oath of fealty to his ſovereign lord any other way than by placing his hands within thoſe of the king; and abſolutely refuſed to kiſs his feet, as cuſtom then required. It was with great difficulty he was prevailed on to let one of his warriors perform this ceremony in his ſtead; but the officer to whom Rollo deputed this ſervice, ſuddenly raiſed the king's foot ſo high, that he overturned him on his back; a piece of rudeneſs which was only laughed at: to ſuch a degree were the Normans feared, and Charles deſpiſed.

Soon after, Rollo was perſuaded to embrace Chriſtianity, and he was baptized with much ceremony by the archbiſhop of Rouen in the cathedral of that city. As ſoon as he ſaw himſelf in full poſſeſſion of Normandy, he exhibited ſuch virtues as rendered the province happy, and deſerved to make his former outrages forgotten. Religious, wiſe, and liberal, this captain of pirates became, after Alfred, the greateſt and moſt humane prince of his time.

ROMAN, in general, ſomething belonging to the city of Rome. See ROME.

KING OF THE ROMANS, in modern hiſtory, is a prince elected to be ſucceſſor to the reigning emperor of Germany.

ROMANCE, in matters of literature, a fabulous relation of certain adventures deſigned for the entertainment and inſtruction of the readers, and differing from the *novel* as it always exhibits actions great, dangerous, and generally extravagant. Many authors of the firſt name have written on the ancient *romance*. It has exerciſed the pen of Hurd, of Warburton, and of ſome ladies, who have not thought it any derogation to the ſenſibility of their ſex to unite antiquarian reſearch with the cultivation of the *belles lettres*. We have not, however, ſeen anywhere ſo concise, juſt, and elegant an account of the origin and progreſs of *romances* as in D'Iſraeli's Curioſities of Literature. "Romance (ſays this writer) has been elegantly defined the offſpring of fiction and love. Men of learning have amuſed themſelves with tracing the epocha of romances. In this

Romance

research they have displayed more ingenuity than judgement; and some have fancied that it may have existed as far back as the time of Aristotle; Dearchus, one of his disciples, having written several works of this amusing species.

"Let us, however, be satisfied in deriving it from the Theagenes and Chariclea of Heliodorus, a bishop who lived in the 4th century, and whose work has been lately translated. This elegant prelate was the Grecian Fenelon (A). Beautiful as these compositions are when the imagination of the writer is sufficiently stored with accurate observations on human nature, in their birth, like many of the fine arts, they found in the zealots of religion men who opposed their progress. However Heliodorus may have delighted those who were not insensible to the felicities of a fine imagination, and to the enchanting elegancies of style, he raised himself, among his brother ecclesiastics, enemies; who at length so far prevailed, that it was declared by a synod, that his performance was dangerous to young persons, and that if the author did not suppress it, he must resign his bishoprick. We are told he preferred his romance to his bishoprick. Even so late as in Racine's time, it was held a crime to peruse these unhallowed pages. He informs us, that the first effusions of his muse were in consequence of studying that ancient romance, which his master observing him to devour with the keenness of a famished man, he snatched it from his hands and flung it in the fire; a second copy experienced the same fate. What could Racine do? He bought a third, and took the precaution of devouring it secretly, till he got it by heart; after which he offered it to his master with a smile to burn, if he chose, like the others.

The decision of these bigots was founded in their opinion of the immorality of such works. They alleged, that the writers paint too warmly to the imagination, address themselves too forcibly to the passions; and in general, by the freedom of their representations, hover on the borders of indecency. This censure is certainly well-founded. Many of the old romances, and even of the dramas, acted in Scotland two centuries ago, are such as common prostitutes would in this age think indecent. But we are at present concerned with the origin of romance.

"The learned Fleury thinks that they were not known till the 12th century, and gives as their original the history of the dukes of Normandy. Verdier, whose opinion is of no great weight, says the invention of romance was owing to the Normans of France; and that these fictions being originally written in the old Norman language, they were intitled *Normances*; the name was afterwards altered to that of *Romances*. The Spaniards, who borrowed them from the French, called them *Romanzes*, which also did the Italians.

"Dom Rivet, one of the learned associates of the congregation of St Maur, authors of the Literary History of France, fixes their origin in the 10th century. He says, that the most ancient romance known was one which appeared in the middle of that century, under the title of *Philomena*, or *the Beloved*. This romance contains the pretended exploits of Charlemagne before Narbonne. At Toulouse, he tells us, they have preserved a copy of the Philomena in its original language; that is to say, the Romaunt or polished; such as was then spoken at court. They preferred this language to the Latin, which was then that of the common people, but vitiated with their corruptions.

"So far have we travelled on the road of conjecture: we shall now turn into the path of fact. It is certain that these compositions derive their name from the language in which they were first written. Abbé Traild has given us the character of the earliest romances, which we shall transcribe; for to add to what is well expressed, however it may please the vanity of a writer, seldom tends to the gratification of the reader.

'The first romances were a monstrous assemblage of histories, in which truth and fiction were equally blended, but all without probability; a composition of amorous adventures, and all the extravagant ideas of chivalry. The incidents are infinitely multiplied; destitute of connection, of order, and art. These are the ancient and miserable romances which Cervantes, in his celebrated satirical romance of Don Quixote, has covered with an eternal ridicule.'

"It is, however, from these productions rather in their improved state, that poets of all nations have drawn their richest inventions. The agreeable wildness of that fancy which characterised the eastern nations was caught by the crusaders. When they returned home, they mingled in their own the customs of each country. The Saracens, who were men like themselves, because they were of another religion, and were therefore their enemies, were pictured under the tremendous form of *Paynim Giants*. The credulous reader of that day followed with trembling anxiety the *Red-cross Knight*. It was thus that fiction embellished religion, and religion invigorated fiction. Such incidents have enlivened the cantos of Ariosto, and adorned the epic of Tasso. Spenser is the child of their creation; and it is certain that we are indebted to them for some of the bold and strong touches of Milton."

Other circumstances however have been assigned as the sources of these extravagant fictions. "Castles were erected to repulse the vagrant attacks of the Normans; and in France (from the year 768 to 987) these places became fatal to the public repose. The petty despots who raised these castles, pillaged whoever passed, and carried off the females who pleased them. Rapine, of every kind, was the privilege of Lords! Mezeray observes, that it is from these circumstances romancers have

(A) An ingenious and learned friend inquires, 'Is not the romance of the Golden Ass, by Apuleius, to be considered as an earlier specimen than that of Heliodorus?' To this our author has no objection; but he would not warrant *any* romance to be the *first* that ever was written. It is thus that some writers, more learned than sagacious, have discovered the first inventor of epistolary correspondence. A lady receives this honour: such learning is desperate! From the Asiatic Researches and other publications on Oriental literature, we are led to believe, that the native country of romance is the east; where it seems to have flourished in all its extravagant grandeur from time immemorial.

mance. have invented their tales of knights-errant, monsters, and giants.

"De Saint Foix, in his Historical Essays on this subject, thus expresses himself: 'Women and girls were not in greater security when they passed by abbeys. The monks sustained an assault rather than relinquish their prey: if they saw themselves losing ground, they brought to their walls the relics of some saint. Then it generally happened that the assailants, seized with awful veneration, retired, and dared not to pursue their vengeance. This is the origin of the enchanters, of the enchantments, and of the enchanted castles, described in romances.'

"To these may be added what the author of Northern Antiquities, Vol. I. p. 243, writes, that 'as the walls of the castles ran winding round them, they often called them by a name which signified *serpents* or *dragons*; and in these were commonly secured the women and young maids of distinction, who were seldom safe at a time when so many bold warriors were rambling up and down in search of adventures. It was this custom which gave occasion to ancient romancers, who knew not how to describe any thing simply, to invent so many fables concerning princesses of great beauty, guarded by dragons.'

"The Italian romances of the 14th century were spread abroad in great numbers. They formed the polite literature of the day. But if it is not permitted to authors freely to express their ideas, and give full play to the imagination, these works must never be placed in the study of the rigid moralist. They indeed pushed their indelicacy to the verge of grossness, and seemed rather to seek than to avoid scenes which a modern would blush to describe. They (to employ the expression of one of their authors) were not ashamed to name what God had created. Cinthio, Bandello, and others, but chiefly Boccacio, rendered libertinism agreeable, by the fascinating charms of a polished style, and a luxuriant imagination.

"This however must not be admitted as an apology for immoral works; for poison is still poison, even when it is delicious. Such works were, and still continue to be, the favourites of a nation which is stigmatised for being prone to illicit pleasures and impure amours. They are still curious in their editions, and are not parsimonious in their price for what they call an uncastrated copy. There are many Italians, not literary men, who are in possession of an ample library of these old novelists.

"If we pass over the moral irregularities of these romances, we may discover a rich vein of invention, which only requires to be released from that rubbish which disfigures it to become of an invaluable price. The Decamerons, the Hecatommiti, and the Novellas of these writers, made no inconsiderable figure in the little library of our Shakespeare. Chaucer is a notorious imitator and lover of them; his Knight's Tale is little more than a paraphrase of Boccacio's Teseoide. Fontaine has caught all their charms with all their licentiousness. From such works, these great poets, and many of their contemporaries, frequently borrowed their plots; not uncommonly kindled at their flame the ardour of their genius; but bending too submissively to their own peculiar taste, or that of their age, in extracting the ore, they have not purified it of the alloy.

"We must now turn our contemplation to the French romances of the last century. They were then carried to a point of perfection, which as romances they cannot exceed. To this the Astrea of D'Urfé greatly contributed. It was followed by the illustrious Bassa, the great Cyrus, Clelia, &c. which, though not adapted to the present age, gave celebrity to their authors. Their style, as well as that of the Astrea, is diffuse and insipid. Zaide (attributed by some to Segrais, but by Huet to Madame La Fayette) and the princess of Cleves are translated, and though they are masterpieces of the kind, were never popular in our country, and are little adapted to its genius.

"It is not surprising that romances have been regarded as pernicious to good sense, morals, taste, and literature. It was in this light they were considered by Boileau; because a few had succeeded, a crowd imitated their examples. Gomberville and Scudery, and a few more were admired; but the satirist dissolved the illusion. This he did most effectually by a dialogue, in which he ridicules those citizens of a certain district, whose characters were concealed in these romances, under the names of Brutus, Horace Cocles, Lucretius, and Clelia. This dialogue he only read to his friends, and did not give it for a long time to the public, as he esteemed mademoiselle de Scudery: but when at length it was published, it united all the romance writers against our satirist.

"From romances, which had now exhausted the patience of the public, sprung novels. They attempted to allure attention by this inviting title, and reducing their works from ten to two volumes. The name of romance disgusted; and they substituted those of histories, lives, memoirs, and adventures. In these works (observes Irail) they quitted the unnatural incidents, the heroic projects, the complicated and endless intrigues, and the exertion of noble passions; heroes were not now taken from the throne, they were sought for even amongst the lowest ranks of the people. On this subject, I shall just observe, that a novel is a very dangerous poison in the hand of a libertine; it may be a salutary medicine in that of a virtuous writer." See Novel.

ROMAGNA, a province of Italy, in the pope's territories, bounded on the north by the Ferrarese, on the south by Tuscany and the duchy of Urbino, on the east by the Gulf of Venice, and on the west by the Bolognese and a part of Tuscany. It is fertile in corn, wine, oil, fine fruits, and pastures. It has also mines, mineral waters, and salt-works, which make its principal revenue. Ravenna is the capital town.

ROMANIA, a province of Turkey in Europe, bounded on the north by Bulgaria, on the east by the Black Sea, on the south by the Archipelago and the sea of Marmora, and on the west by Macedonia and Bulgaria; being 200 miles in length and 150 in breadth. It was formerly called *Thrace*, and is the principal and largest of all the provinces the Turks possess in Europe. It is a fruitful country in corn and pastures, and there are mines of silver, lead, and alum. It is divided into three great governments or sangiacates; namely, Kirkel, of which Philipoli is the capital; Galipoli, whose capital is of the same name; and Byzantium, or Byzia, or Viza, of which Constantinople is the capital. The Turks bestow the name

Romano, Rome.

name of *Romelia* on all the territories they possess in Europe.

ROMANO (Giulio), a famous painter, was the disciple of Raphael, who had such an affection for him, that he appointed him, with John Francis Penni, his heir. His conceptions were more extraordinary and more elevated than even those of his master, but not so natural. He was wonderful in the choice of attitudes; but did not perfectly understand the lights and shades, and is frequently harsh and ungraceful. The folds of his draperies, says Du Fresnoy, are neither beautiful nor great, easy nor natural, but all extravagant, like the fantastical habits of comedians. He was, however, superior to most painters, by his profound knowledge of antiquity; and, by conversing with the works of the most excellent poets, particularly Homer, he made himself master of the qualifications necessarily required in a great designer. Julio Romano was also well skilled in architecture. He was employed by cardinal de Medicis, who was afterwards pope under the name of *Clement* VII.; and afterwards went to Mantua, whither he was invited by Frederic Gonzaga, marquis of that city, in order to avoid his being justly punished for his having drawn at Rome the designs of 20 obscene plates, engraved by Mark Antony, to which Aretine added the same number of sonnets. Julio Romano embellished the city of Mantua with many of his performances both in painting and architecture; and died in that city in 1545, at 54 years of age, much regretted by the marquis, who had an extraordinary friendship for him.

ROME, a very ancient and celebrated city of Italy, situated on the river Tiber, in E. Long. 13°. N. Lat. 41. 45. once the capital of the greatest empire in the world; and famous in modern history for being the centre of an ecclesiastical tyranny, by which for many ages the greatest part of the world was held in subjection.

2 Romans descended from Æneas.

The ancient Romans derived their origin from Æneas the Trojan hero: and though some historians pretend to treat his voyage into Italy as a mere fable, yet no sufficient reasons for rejecting this account have been offered, nor has any more probable history of the origin of the Roman name been given; so that, without entering into the dispute, we shall proceed to the history of Æneas and his successors as they are recorded by the generality of Latin writers.

When the Greeks, by the treachery of the sons of Antenor, or by whatever other means it happened, were become masters of Troy, Æneas with the forces under his command retired into the fortress of the city, and defended it bravely for some time; but yielding at length to necessity, he conveyed away his gods, his father, wife, and children, with every thing he had that was valuable, and, followed by a numerous crowd of Trojans, fled to the strong places of Mount Ida. Hither all those of his countrymen, who were more anxious than the rest to preserve their liberty, flocked to him from the several towns of Troas. His army thus augmented and advantageously posted, he continued quiet, waiting for the departure of the Greeks, who, it was imagined, would return home as soon as they had pillaged the country. But these, after they had enriched themselves with the spoils of Troy and of the neighbouring towns, turned their arms against the fugitives, resolving to attack them in their strong-holds upon the mountain. Æneas, to avoid the hazard of being forced in his last refuge, had recourse to negociation; and, by his heralds, intreated the enemy not to constrain him to a battle. Peace was granted him, on condition that he with his followers quitted the Trojan territories; and the Greeks, on their part, promised not to molest him in his retreat, but to let him safely pass through any country within the extent of their domination.

2 Æneas flies from Troy to mount Ida.

3 Makes peace with the Greeks and leaves

Upon this assurance Æneas equipped a fleet, in order to seek a settlement in some foreign land. We are told, that at his departure he left his eldest son Ascanius with the Dasylites, a people of Bithynia, who desired to have him for their king; but that the young prince did not remain long with them: for when Scamandrius (Astyanax), with the rest of the Hectoridæ whom Neoptolemus permitted to return home from Greece, repaired to him, he put himself at their head, and led them back to their native country.

The Trojan having crossed the Hellespont, arrived in the peninsula of Pallene, where he built a city, called from him *Æneia*, and left in it a part of that multitude which had followed him. From thence he sailed to Delos; and thence to Cythera, where he erected a temple to Venus. He built another to the same goddess in Zacynthus, in which island he likewise instituted games, called the *races of Æneas and Venus*: the statues of both, says Dionysius, are standing to this day. In Leucas, where the Trojans landed, was to be seen, in the same author's time, a temple erected to Venus the mother of Æneas. Nor were Actium and Ambracia without monuments that testified his arrival in those places. At Dodona were found brazen vases, upon which the name of the Trojan hero, who had made an offering of them to Jupiter, was engraven in old characters. Not far from Buthrotos, in Epirus, a Trojan camp which had escaped the injuries of time, retained the name of *Troja*. All these antiquities, still subsisting in the reign of Augustus, were then looked upon as indisputable proofs of Æneas's voyage to Epirus: "and that he came into Italy (adds the same Dionysius) we have the concurrent testimony of all the Romans; the ceremonies they observe in their sacrifices and festivals bear witness to it, as also the Sibylline books, the Pythian oracles, and many other things which nobody can reasonably reject as invented merely for ornament."

The first land of Italy which Æneas made, after crossing the Ionian sea, was cape Minerva, in Iapygia; and here he went on shore. Sailing afterwards from hence, and coasting along the south-east of Italy and the east and south sides of Sicily, he arrived with his fleet either by choice or by stress of weather at the port of Drepanum in that island. Elymus and Ægestus, who had escaped from Troy a little before him, had brought a Trojan colony to this place. Æneas augmented it by a good number of his followers, whom, pleased to have found a safe resting place after many dangers and fatiguing voyages, he willingly left behind him at their request; though certain authors pretend that he was constrained to it by the difficulty of transporting them, because some Trojan women, weary of the sea, had burnt a considerable part of his ships.

Æneas, leaving Drepanum, steered his course for Italy

taly across the Tyrrhenian sea. To the cape where he first landed, he gave the name *Palinurus*, from one of his pilots who died there. The little island of Leucasia, not far distant, whither he sailed next, got its name in like manner from a daughter of Æneas's sister, who there ended her days. The port of Misenum, the island of Prochyta, and the promontory of Cajeta, where he successively arrived, were so called from being the burial places, the first of a noble Trojan his companion, the second of his kinswoman, and the third of his nurse. At length the Trojan prince and his chosen band finished their tedious and painful voyages on the coast of the since famous Latium. This was a small territory on the east side of the river Tiber, containing a part of the present *Campagna di Roma*: Latinus was the king of it; his capital town, Laurentum; his subjects, a people who, till his time called *Aborigines*, had from him taken the name of *Latins*. Here, far removed from their implacable enemies the Greeks, Æneas and his followers undertook to raise a second Troy: they fortified a camp near the mouth of the Tyber, gave it the name of *Troy*, and flattered themselves with the hopes of a quiet settlement, and a period to all their unhappy adventures.

When Æneas arrived in Italy, Latinus was engaged in a war with the Rutuli, a neighbouring people, in which he was attended but with very indifferent success, when news was brought him that a foreign army had made a descent on his coasts, pillaged the maritime part of his dominions, and were fortifying themselves in a camp at a small distance from the sea. Hereupon he marched against them with all his forces, hoping to oblige them to reimbark and abandon his dominions, without meeting with any great resistance from a band of vagabonds, as he supposed, or pirates, come only to seek for plunder: but finding them, as he drew near, well-armed, and regularly drawn up, he thought it advisable to forbear engaging troops that appeared so well disciplined; and, instead of venturing a battle, to desire a parley. In this conference Latinus understanding who they were, and being at the same time struck with terror, and touched with compassion for those brave but unfortunate men, entered into a treaty with them, and assigned them a tract of land for a settlement, on condition that they should employ their arms and exert their valour in defence of his dominions, and look upon the Rutuli as a common enemy. This condition Æneas readily accepted; and complied with his engagement so faithfully, that Latinus came at length to repose an entire confidence in the Trojan; and in proof of it gave him Lavinia, his daughter and only child, in marriage, securing to him by that means the succession to the throne of Latium. Æneas, to testify his gratitude to Latinus, and affection for Lavinia, gave her name to the camp he had pitched; and instead of Troy called it *Lavinium*. The Trojans followed the example of their leader; and by making alliances with Latin families, became, in a short time, one and the same people with the Latins.

In the mean time Turnus, the queen's nephew, who had been brought up in the palace under the eye of Latinus, and entertained hopes of marrying Lavinia and succeeding to the throne, seeing the princess bestowed on a stranger, and all his views defeated, went over to the Rutuli; and by stirring them up, brought on a battle between them and the Latins, in which both he and Latinus were killed. Thus Æneas, by the death of his father-in-law, and by that of a troublesome rival, came into the quiet possession of the kingdom of Latium, which he governed with great wisdom, and transmitted to his posterity.

Æneas is said to have reigned three years; during which time he established the worship of the gods of his own country, and to the religion of the Latins added that of Troy. The two Palladiums, which had been the protectors of that city, became the tutelary deities of Lavinium, and, in after ages, of the whole Roman empire. The worship of Vesta was likewise introduced by Æneas; and virgins, from her called *Vestals*, were appointed to keep a fire continually burning in honour of that goddess. Jupiter, Venus, and many other deities who had been revered in Troy, became, in all likelihood, known to the Latins by means of Æneas; which gave occasion to the poets of representing him under the character of a pious hero.

While Æneas was thus employed, the Rutuli, ancient enemies of the Latin name, entering into an alliance with Mezentius king of the Tyrrhenians, took the field with a design to drive out those new-comers, of whose power they began to conceive no small jealousy. Æneas marched out against them at the head of his Trojans and Latins. Hereupon a battle ensued, which lasted till night; when Æneas being pushed to the banks of the Numicus, which ran close by Lavinium, and forced into that river, was there drowned. The Trojans concealed his body; and pretending that he had vanished away on a sudden, made him pass for a deity among his credulous subjects, who accordingly erected a temple to him under the title of *Jupiter Indiges*.

Upon the death of Æneas, his son Euryleon, called also *Ascanius* and *Iulus*, ascended the throne; but as the young king did not think it advisable to venture a battle in the very beginning of his reign, with a formidable enemy, who promised himself great success from the death of Æneas, he had the prudence to confine himself within the walls of Lavinium, and to try whether he could, by an honourable treaty, put an end to so dangerous a war. But the haughty Mezentius demanding of the Latins, as one of the conditions of a peace, that they should pay him yearly, by way of tribute, all the wine produced in the territory of Latium, Ascanius rejected the proposal with the utmost indignation; and having caused all the vines throughout his dominions to be consecrated to Jupiter, and by that means put it out of his power to comply with the enemy's request, he resolved to make a vigorous sally, and try whether he could, by force of arms, bring the insulting Tyrrhenian to more reasonable terms. The main body of the enemy's army was encamped at some distance from Lavinium; but Lausus, the son of Mezentius, with the flower of their youth under his command, lay entrenched at the very gates of the city. The Trojans, who had been long accustomed to make vigorous sallies, marching out in the night, attacked the post where Lausus commanded, forced his entrenchments, and obliged the troops he had with him to save themselves by flying to the main body of the army encamped on the plain; but the unexpected arrival and overthrow

4 Leads in war.

5 Enters into alliance with Latins, and marries his daughter.

6 His death.

7 Succeeded by his son Ascanius.

Rome.

8 Who defeats the Latins.

overthrow of their advance guard ſtruck them with ſuch terror, that, inſtead of ſtopping the flight of their companions, they fled with them, in great diſorder, to the neighbouring mountains. The Latins purſued them, and in the purſuit Lauſus was killed: whoſe death ſo diſcouraged Mezentius, that he immediately ſued for peace; which was granted him, upon condition, that for the future the Tiber ſhould be the boundary between the Latin and Hetrurian territories.

9 His kindneſs to Lavinia and her ſon.

In the mean time Lavinia, who had been left with child by Æneas, entertaining a ſtrong jealouſy of the ambition of her ſon-in-law, retired to the woods, and was there peaceably delivered of a ſon, who, from his father, was named *Æneas*, and, from the place of his birth, had the ſurname of *Sylvius*: but as the queen's flight, who had diſappeared on a ſudden, raiſed ſuſpicions at Lavinium prejudicial to the reputation of Aſcanius, he uſed all poſſible means to remove them, cauſed diligent ſearch to be made after Lavinia, calmed her fears, and prevailed upon her to return to the town with her ſon, whom he ever after treated as a brother. Lavinium grew every day more populous; but as it was in reality the patrimony of Lavinia, and the inheritance of her ſon Sylvius, Aſcanius reſolved to reſign it to them, and build elſewhere another city for himſelf. This he made the place of his reſidence, and the capital of his new kingdom, calling it *Alba Longa*; *Alba*, from a white ſow, which we are told Æneas had found in the place where it was built; and *Longa*, to diſtinguiſh it from another town of the ſame name in the country of the Marſi; or rather, becauſe it extended, without having much breadth, the whole length of a lake near which it was built. It was 30 years after the building of Lavinium that Aſcanius fixed his abode at Alba; and there he died, after a reign of about 38 years, 12 of which he had reſided at his new ſettlement. He left a ſon called *Iulus*; ſo that between him and Sylvius lay the right of ſucceſſion to the Latin throne; the latter being the ſon, and the former the grandſon, of Æneas.

10 Aſcanius founds Alba Longa.

The Latins not thinking it their intereſt to continue divided, as it were, into two ſtates, reſolved to unite Alba and Lavinium into one ſovereignty; and as Sylvius was born of Lavinia the daughter of Latinus, and had thereby an undoubted title to the kingdom of his grandfather, whereas the other was but the ſon of a ſtranger, the Latins beſtowed the crown on Sylvius; and, to make Iulus ſome amends, decreed to him the ſovereign power in affairs of religion; a power which thenceforth continued in his family. Sylvius was ſucceeded by 13 kings of the ſame race, who for near 420 years reigned at Alba; but we ſcarce know any thing of them beſides their names, and the years of their reſpective reigns. Æneas Sylvius died, after a reign of 29 years. His ſon, called alſo *Æneas Sylvius*, governed Latium 31 years. *Latinus Sylvius*, who ſucceeded him, ſwayed the ſceptre for the ſpace of 51 years — Alba reigned 39; Capetus, by Livy named *Atys*, 26; Capis, 28; and Capetus, 13. Tiberinus, who ſucceeded him, engaged in a war which proved fatal to him; for in a battle which was fought on the banks of the Albula, he was forced into that river and drowned. From him the river took the name of *Tiber*, which it has borne ever ſince. Agrippa ſucceeded Tiberinus after a reign of eight years; and left the throne, which he had held 41 years, to Alladius; who reigned 19, and was ſucceeded by Aventinus, who left his name to the hill Aventinus, where he was interred. Procas, who ſucceeded him, and reigned 23 years, was the father of Numitor and Amulius; and at his death bequeathed the throne to his elder ſon Numitor. But Amulius, who ſurpaſſed his brother in courage and underſtanding, drove him from the throne; and to ſecure it to himſelf, murdered Ægeſtus, Numitor's only ſon, and conſecrated his daughter Rhea Sylvia to the worſhip of Veſta, by which ſhe was obliged to perpetual virginity. But this precaution proved ineffectual; for as the Veſtal was going to a neighbouring ſpring to fetch water for the performance of a ſacrifice to Mars, ſhe was met and raviſhed by a man in a military habit, like that in which the god Mars is repreſented. Some authors think that this counterfeit Mars was a lover come thither by her appointment; others charge Amulius himſelf with uſing this violence to his niece, not ſo much to gratify his luſt, as to have a pretence to deſtroy her. — For ever after he cauſed her to be carefully watched, till ſhe was delivered of two ſons; and then exaggerating her crime in an aſſembly of the people, he prevailed upon them to ſentence her to death, and to condemn the fruit of her criminal amour to be thrown into the Tiber. The ſentence againſt Rhea was, according to ſome authors, changed by Amulius, at the requeſt of his daughter Antho, into perpetual confinement, but executed againſt the twins; who being laid in a wooden trough, and carried to the foot of mount Palatine, were there turned adrift on the Tiber, which at that time overflowed its banks. But the wind and ſtream proved both ſo favourable, that at the fall of the water the two infants were left ſafe on the ſtrand, and were there happily found by Fauſtulus, the chief of the king's ſhepherds, and ſuckled by his wife Acca Laurentia, who for her diſorderly life was called *Lupa*; and this probably gave riſe to the fabulous miracle of their being nurſed by a wolf.

11 Reſigns the kingdom.

12 Origin of the name *Tiber*.

13 Adventure of Rhea Sylvia.

14 Of Romulus and Remus.

As Fauſtulus was probably well acquainted with the birth of the twins, he took more than ordinary care of their education, and ſent them to Gabii to be inſtructed there in Greek literature. As they grew up, they appeared to have ſomething great in their mien and air which commanded reſpect; and the aſcendant which they aſſumed over the other ſhepherds made them dreaded in the foreſts, where they exerciſed a ſort of empire. A quarrel happening between the herdſmen of Amulius and thoſe of Numitor, the two brothers took the part of the former againſt the latter; and ſome blood being ſhed in the fray, the adverſe party, to be revenged on *Romulus* and *Remus* (for ſo the twins were called), on the feſtival of Lupercalia, ſurpriſed Remus, and carried him before Numitor, to be puniſhed according to his deſerts. But Numitor feeling himſelf touched in the priſoner's favour, aſked him where he was born, and who were his parents. His anſwer immediately ſtruck Numitor with a lively remembrance of his two grandſons; their age, which was about 18 years, agreed with the time when the two infants were expoſed upon the Tiber; and there needed no more to change his anger into tenderneſs.

In the mean time Romulus, eager to reſcue his brother, and purſue thoſe who had carried him off, was preparing to be revenged on them; but Fauſtulus diſ-

suaded him from it; and on that occasion, disclosing to him his birth, awakened in his breast sentiments worthy of his extraction. He resolved, at all adventures, to attempt the delivering of his mother and grandfather from oppression. With this view he assembled the country people, over whom he had assumed a kind of sovereignty, and engaged them to come to the city on an appointed day, and enter it by different gates, provided with arms, which they were to conceal. While Romulus was thus disposing every thing for the execution of his design, Numitor made the same discovery to Remus concerning his parents, and the oppressions they groaned under; which so fired him, that he was ready to embark in any enterprise. But Numitor took care to moderate the transports of his grandson, and only desired him to acquaint his brother with what he had heard from him, and to send him to his house. Romulus soon came, and was followed by Faustulus, who took with him the trough or skiff in which the twins had been exposed, to show it to Numitor: but, as the shepherd betrayed an air of concern and earnestness in his looks, he was stopped at the gate of the city, led before Amulius, and examined concerning his burden. It was easily known by its make and inscription, which was still legible; and therefore Faustulus owned what it was, and confessed that the twins were living; but, in order to gain time, pretended that they were feeding flocks in a remote desert. In the mean time, the usurper's death being resolved on, Remus undertook to raise the city, and Romulus to invest the king's palace. The country people came at the time appointed, and formed themselves into companies each consisting of 100 men. They had no other ensigns but bundles of hay hanging upon long poles, which the Latins at that time called *manipuli*; and hence came the name of *manipulares*, originally given to troops raised in the country. With this tumultuous army Romulus beset the avenues of the palace, forced the guard, and having killed the tyrant, after he had reigned 42 years, restored his grandfather Numitor to the throne.

Affairs being thus settled at Alba, the two brothers, by the advice of Numitor, undertook the founding of a new colony. The king bestowed on them those lands near the Tiber where they had been brought up, supplied them with all manner of instruments for breaking up ground, with slaves, and beasts of burden, and granted full liberty to his subjects to join them. Hereupon most of the Trojans, of whom there still remained 50 families in Augustus's time, chose to follow the fortune of Romulus and Remus, as did also the inhabitants of Pallantium and Saturnia, two small towns. For the more speedy carrying on of the work, it was thought proper to divide those who were to be employed in the building of the city into two companies, one under the command of Romulus, the other of Remus; but this division, which was designed purely with a view to the public welfare, and that the two parties might work by way of emulation, gave birth to two factions, and produced a jealousy between the two brothers, which broke out when they came to choose a place for the building of their new city; for Remus was for the Aventine, and Romulus for the Palatine mount. Upon which, the matter being referred to their grandfather, he advised the contending parties to have recourse to the gods, and to put an end to the dispute by augury, to which he was himself greatly addicted. The day appointed for the ceremony being come, the brothers posted themselves each upon his hill; and it was agreed, that whoever should see the first flight, or the greatest number, of vultures, should gain his cause. After the two rivals had waited some time for the appearance of a favourable omen, Romulus, before any had appeared, sent to acquaint his brother that he had seen some vultures; but Remus, having actually seen six, while his brother's messengers were yet on their way, hastened, on their arrival, to mount Palatine, to examine the truth of what they had told him. He had no sooner got thither, than by an unexpected good fortune twelve vultures appeared to Romulus. These he immediately showed to his brother; and, transported with joy, desired him to judge himself of the truth of what his messengers had told him. However, Remus discovered the deceit; and, being told that Romulus had not seen the twelve vultures till after he had seen six, he insisted on the time of his seeing them, and the other on the number of birds he had seen. This widened the breach between the two brothers; and, their parties being divided, while each man espoused the cause of his leader, the dispute grew so warm, that, from words they came at length to blows. The shepherd Faustulus, who was equally dear to both the brothers, endeavouring to part the combatants, was by an unknown hand laid dead on the spot. Some writers tell us, that Remus likewise lost his life in the fray; but the greater number place his death later, and say that he was killed by one Fabius, for having, in derision, leaped over the wall of the new city: but Livy says, the more common report was, that Remus fell by the hand of his brother.

Romulus, being now head of the colony, by having got the better of his brother's party in the late engagement, applied his thoughts wholly to the building of the city, which he proposed to call after his own name. He chose mount Palatine for its situation, and performed all those ceremonies which the superstition of the Hetrurians had introduced. He first offered sacrifices to the gods, and ordered all the people to do the same: and from that time decreed, that eagles should be the auspices of his new colony. After this, great fires were kindled before their tents, and all the people leaped through the flames to purify themselves. When this ceremony was over, they dug a trench round the spot where the assemblies of the people were afterwards held, and threw into it the first-fruits of whatever they were allowed to make use of for food: every man of the colony was ordered to cast into the same trench an handful of earth, brought either from his own or some neighbouring country. The trench they called *Mundus*, that is, *the world*, and made it the centre round which the city was to be built. Then Romulus, yoking an ox and a cow to a plough, the coulter whereof was brass, marked out, by a deep furrow, the whole compass of the city. These two animals, the symbols of marriage, by which cities are peopled, were afterwards slain upon the altar. All the people followed the plough, throwing inwards the clods of earth which the ploughshare sometimes turned outwards. Wherever a gate was to be made, the plough was lifted up, and carried; and hence came the Latin word *porta*, "a gate," derived

Rome.

16 Death of Remus.

17 Foundation of Rome.

Rome.

rived from the verb *portare*, "to carry." As mount Palatine stood by itself, the whole was inclosed within the line made by the plough, which formed almost the figure of a square; whence, by Dionysius Halicarnassensis, it is called *Roma Quadrata*.

As to the exact year of the foundation of Rome, there is a great disagreement among historians and chronologers. Fabius Pictor, the most ancient of all the Roman writers, places it in the end of the seventh Olympiad; that is, according to the computation of Usher, in the year of the world 3256, of the flood 1600, and 748 before the Christian æra. The Romans, if we may so call them, began to build, as Plutarch and others inform us, on the 21st of April; which day was then consecrated to Pales, goddess of the shepherds; whence the festival of Pales, and that of the foundation of the city, were afterwards jointly celebrated at Rome.

18 At first but a poor village.

When Rome had received the utmost perfection which its poor and rude founder could give it, it consisted of about 1000 houses, or rather huts; and was properly speaking a beggarly village, whereof the principal inhabitants followed the plough, being obliged to cultivate with their own hands the ungrateful soil of a barren country which they had shared among themselves. Even the walls of Romulus's palace were made of rushes, and covered with thatch. As every one had chosen his ground to build upon, without any regard to the regularity and beauty of the whole, the streets, if we may so call them, were both crooked and narrow. In short, Rome, till it was rebuilt after the burning of it by the Gauls, was rather a disorderly heap of huts, than a city built with any regularity or order.

19 Romulus elected king.

As soon as the building of the city was finished, Romulus assembled the people, and desired them to choose what kind of government they would obey. At that time monarchy was the unanimous voice of the Romans, and Romulus was elected king. Before he ascended the throne, however, he consulted the will of the gods by augury; and having received a favourable answer, it thence became an established custom to have recourse to augury before the raising any one to the dignity of king, priest, or any public employment. After this he applied himself to the establishment of good order and subordination among his subjects. He put on a habit of distinction for himself, appointed 12 lictors to attend him as guards, divided his subjects, who at this time consisted only of 33,000 men, into *curiæ*, *decuriæ*, *patricians*, *plebeians*, *patrons*, *clients*, &c. for an account of which, see these articles as they occur in the order of the alphabet. After this he formed a senate consisting of 100 persons, chosen from among the patricians; and a guard of 300 young men called *celeres*, who attended the king, and fought either on foot or on horseback as occasion required. The king's office at home was to take care of religious affairs, to be the guardian of laws and customs; to decide the weightier causes between man and man, referring those of smaller moment to the senate; to call together the senators, and assemble the people, first delivering his own opinion concerning the affair he proposed, and then ratifying by his consent what was agreed on by the majority. Abroad, and in the time of war, he was to command the army with absolute authority, and to take care of the public money. The senate were not only to be judges in matters of small importance, but to debate and resolve upon such public affairs as the king proposed, and to determine them by a plurality of voices. The people were allowed to create magistrates, enact laws, and resolve upon any war which the king proposed; but in all these things the consent of the senate was necessary.

Romulus next proceeded to settle the religious affairs of his people. Many of the Trojan and Phrygian deities were added to those whom the Aborigines or Italian natives already worshipped. He chose priests, instituted festivals, and laid the foundation of a regular system of religion; after which, as his colony was still thinly peopled, he opened an asylum for fugitive slaves, homicides, outlaws, and debtors. These, however, he did not at first receive within the walls, but appointed for their habitation the hill Saturnius called afterwards *Capitolinus*, on which he erected a temple to a divinity of his own invention, whom he named the *Asylean god*, under whose protection all criminals were to live securely. But afterwards, when the city was enlarged, the asylum was inclosed within the walls, and those who who dwelt in it included among the citizens of Rome.

20 Rape of Sabine men.

When Romulus had thus settled every thing relating to his new colony, it was found that a supply of women was wanting to perpetuate its duration. This occasioned some difficulty; for the neighbouring nations refused to give their daughters in marriage to such a crew of vagabonds as had settled in Rome; wherefore Romulus at last resolved on the following expedient. By the advice of his grandfather Numitor, and with the consent of the senate, he proclaimed a solemn feast and public games in honour of the Equestrian Neptune called *Consus*. This occasioned a great concourse of people, who flocked from the adjacent parts to behold these pompous shows, together with the new city. But, in the midst of the solemnity, the Romans, rushing in with their swords drawn, seized all the young women, to the number of 683, for whom Romulus chose husbands. Among all those who were thus seized, only one married woman, named *Hersilia*, was found; and Romulus is said to have kept her for himself.

21 Occasions war with the neighbouring nations.

This violence soon brought on a war with the neighbouring nations. Acron king of Cænina, a city on the confines of Latium, having entered into a league with the inhabitants of Crustuminum and Antemnæ, invaded the Roman territories. Romulus marched against them without delay, defeated the confederate army, killed their king in single combat, decreed himself a triumph, and consecrated the spoils of Acron to Jupiter Feretrius, under the name of *Opima Spolia*. The city of Cænina was razed to the ground, and the inhabitants transplanted to Rome, where they were admitted to the privileges of citizens. The king then marched with one legion (consisting at this time of 3000 foot and 300 horse) against the Crustumini and Antemnates, both of whom he defeated in battle, and transplanted the inhabitants to Rome; which being incapable of holding such a number, Romulus took in the hill Saturnius above-mentioned, on the top of which he built a citadel, committing the care of it to a noble Roman named *Tarpeius*. The citadel was surrounded on all sides with ramparts and towers, which equally commanded the city and country. From the foot of the hill Saturnius a wall was carried on quite to the Tiber, and a gate

22 Rome enlarged.

opened in it named *Carmentalis*, from Carmenta the mother of Evander, who either lived there, or had some chapel or altar erected to her.

Romulus had now become so formidable to his neighbours, and had so well established his reputation for clemency, that several cities of Hetruria voluntarily submitted to him. Cœlius, an Hetrurian general, led the troops under his command to Rome, and settled on an hill near the city, which from him took the name of *Mount Cœlius*. The Sabines, however, not in the least dismayed at this increase of the Roman forces, sent a deputation to Romulus, demanding restitution of the young women who had been carried off; and, upon his refusal, marched to Rome with an army of 25,000 foot and 1000 horse, under the command of their king Titus Tatius. Romulus, having received supplies from Numitor and from Hetruria, likewise took the field, with 20,000 foot and 800 horse, with whom he seized an advantageous post, and fortified himself so strongly, that he could not be attacked. The Sabine monarch, perceiving the military skill of Romulus, began to be apprehensive of the event; but was extricated out of his difficulties by the treachery of Tarpeia daughter to the governor of the citadel, who agreed to betray that important fortress to the enemy, on condition of being rewarded with the bracelets which the Sabines wore on their left arms. But when once they became masters of this important place, they are said to have crushed Tarpeia under the weight of their bucklers, pretending that thus they discharged their promise, as they wore their bucklers also on their left arms. The possession of the citadel enabled the Sabines to carry on the war with more success; but, at last, in a general engagement, they had the misfortune to be driven back into the citadel, whither they were pursued by the Romans, who expected to have retaken that important post; but the enemy, rolling down great stones from the top of the hill, wounded Romulus on the head, so that he was carried insensible out of the field of battle, while, in the mean time, his troops were repulsed, and pursued to the very gates of Rome. However, the king soon recovering himself, encouraged his routed troops, and drove the enemy back into the citadel. But while the two nations were thus fiercely contending, the women, for whose cause the war had been commenced, undertook the office of mediators; and having obtained leave from the senate, marched in a body to the camp of the Sabines, where they pleaded the cause of their husbands so effectually, that a treaty of union between the two nations was set on foot, and a peace was at last concluded, on the following terms. 1. That the two kings should reside and reign jointly at Rome. 2. That the city should still, from Romulus, be called *Rome*; but the inhabitants *Quirites*, a name till then peculiar to the Sabines. 3. That the two nations should become one; and that the Sabines should be made free in Rome, and enjoy all the privileges of Roman citizens. As Rome was chiefly indebted for this increase of her power and splendor to the Sabine women, honourable privileges and marks of distinction were allowed them. Every one was commanded to give way to them; in capital causes they were exempted from the jurisdiction of the ordinary judges; and their children were allowed to wear a golden ball hanging from their necks, and a particular kind of robe called *prætexta*, to distinguish them from the vulgar.

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The two kings reigned with great harmony for the space of five years; during which time the only military exploit they accomplished was the reduction of the city of Cameria, at a small distance from Rome. Four thousand of the Camerini were transplanted to Rome, and a Roman colony sent to repeople Cameria; soon after which the Sabine king was murdered by the Lavinians, on account of his granting protection to some of his friends who had ravaged their territories. The Lavinians, fearing the resentment of Romulus, delivered up the assassins into his hands; but he sent them back unpunished, which gave occasion to suspect that he was not displeased with the death of his colleague.

26 Tatius murdered.

Soon after the death of Tatius, Rome was afflicted with famine and pestilence, which encouraged the Camerini to revolt; but Romulus marching against them suddenly, defeated them with the loss of 6000 men. After which he attacked the Fidenates, whose city stood about five miles from Rome, took their capital, and made it a Roman colony. This drew upon him the resentment of the Veientes, a powerful nation in the neighbourhood, who claimed Fidenæ as within their jurisdiction; but their forces being defeated in two engagements, and a great number of them taken prisoners, they were obliged to sue for peace. Romulus granted them a truce for 100 years, on condition that they delivered to him seven small towns on the Tiber, together with some salt-pits near the mouth of that river, and sent 50 of their chief citizens as hostages to Rome. The prisoners taken in this war were all sold for slaves.

The remaining part of the life of Romulus was spent in making laws for the good of his people; but towards the latter end of his reign, being elated with success, he began to enlarge the bounds formerly set to his prerogative, and to behave in an arbitrary manner. He paid no longer any regard to the voice of the senate, but assembled them only for form's sake to ratify his commands. The senate therefore conspired to destroy him, and accomplished their purpose while he was reviewing his troops. A violent storm of hail and thunder dispersed the army; and the senators taking this opportunity, when they were left alone with the king, instantly killed him, and conveyed his body out of sight. Some writers tell us, that, the better to conceal the fact, they cut his body in pieces, each of them carrying away a part under his robe; after which they told the multitude, that their king was on a sudden surrounded by flame, and snatched up into heaven. This stratagem, however, did not satisfy the soldiery, and violent disturbances were about to ensue, when Julius Proculus, a senator of great distinction, having assembled the Curiæ, told them that Romulus had appeared to him, and enjoined him to acquaint the people, that their king was returned to the gods from whom he originally came, but that he would continue to be propitious to them under the name of *Quirinus*; and to the truth of this story Julius swore.

27 And likewise Romulus.

Romulus reigned, according to the common computation, 37 years: but some historians reduce the length of his reign to little more than 17; it being very unlikely, as they observe, that a prince of such an active disposition should perform nothing worthy of

Rome.

28 His death followed by an interregnum.

record during a period of 20 years. Be this as it will, however, the death of Romulus was followed by an interregnum, during which the senators, to prevent anarchy and confusion, took the government into their own hands. Tatius added another hundred to that body; and these 200 senators divided themselves into decuries or tens. These decuries drew lots which should govern first; and the decury to whose lot it fell enjoyed the supreme authority for five days; yet in such a manner, that one person only of the governing decury had the ensigns of sovereignty at a time. To these another decury succeeded, each of them sitting on the throne in his turn, &c. But the people soon growing weary of such frequent change of masters, obliged the senate to resolve on the election of a king. The senate referred the election to the people, and the people to the senate, who at last undertook the task. Some difficulties, however, occurred: the Romans did not choose to be subject to a Sabine; and the Sabines, as they had been subject to Romulus after the death of Tatius, insisted that the king should be chosen out of their nation. At last it was agreed, that the king should be a Sabine, but that the Romans should make the choice.

29 Numa Pompilius the second king.

In consequence of this determination, the Romans elected Numa Pompilius, an austere philosopher, who had married Tatia, the daughter of Tatius the late king. After the death of his wife, he gave himself entirely up to philosophy and superstition, wandering from solitude to solitude, in search of sacred woods and fountains, which gave the people a great opinion of his sanctity. The philosopher at first rejected the offer of the kingdom; but being at last prevailed upon, he set out for Rome, where he was received with loud acclamations, and had his election unanimously confirmed by the senate.

The reign of Numa is by no means memorable for battles or conquests. He was averse to war; and made it his study to soften the manners of the Romans, rather than to exalt them to superiority over their neighbours. He dismissed the celeres, encouraged agriculture, and divided the citizens into distinct bodies of tradesmen. This last measure he took on purpose to abolish the distinction between Romans and Sabines, which had hitherto rent the city into two factions; and this effectually answered his end: for now all of each particular profession, whether Romans or Sabines, were obliged to associate together, and had each their respective courts and privileges. In this division the musicians held the first rank, because they were employed in the offices of religion. The goldsmiths, carpenters, curriers, dyers, taylors, &c. formed also distinct communities; and were allowed to make bye-laws among themselves, to have their own festivals, particular sacrifices, &c.

Though Numa himself is said by Plutarch to have had pretty just notions of the Supreme Being, he nevertheless added innumerable superstitions to those he found in Rome. He divided the ministers of religion into eight classes, appointing to each their office with the greatest precision; he erected a temple to Janus, the symbol of prudence, which was to remain open in time of war, and to be shut in time of peace. Another temple was erected to *Bona Fides*; and he invented a new kind of deities called *Dii Termini*, or boundaries, which he caused to be placed on the borders of the Roman state, and of each man's particular lands.—The last reformation which Numa undertook, was that of the kalendar. Romulus had divided his year into ten months, which, according to Plutarch, had no certain or equal number of days; some consisting of 20, some of 35, &c. However, by other historians, we are informed that he allotted to March, May, Quintilis, and October, 31 days; to April, June, Sextilis, November, and December 30; making in all 304 days. But Numa being better acquainted with the celestial motions, added to these the two months of January and February. To compose these two months he added 50 days to the 304; and thus made the year answer to the course of the moon. He then took six more from the months that had even days; and added one day merely out of superstition, that the year might prove fortunate; for the pagans looked upon even numbers as unlucky, but imagined odd numbers to be fortunate. However, he could make out no more than 28 for February, and therefore that month was always reckoned unlucky among the Romans. Besides this, he observed the difference between the solar and lunar year to be 11 days; and to remedy the inequality, he added an intercalary month named *Mercedinus* or *Mercedonius*, of 22 days every two years: but as he knew also that the solar year consisted of 365 days 6 hours, he ordered that every fourth year the month Mercedinus should consist of 23 days. The care of these intercalations was left to the priests, who left out or put in the intercalary day or month as they imagined it to be lucky or unlucky; and by that means created such confusion, that the festivals came in process of time to be kept at a season quite opposite to what they had been formerly.

30 Succeeded by Tullus Hostilius.

These are all the remarkable transactions of the reign of Numa, which is said to have continued 43 years; though some think that its duration could not be above 15 or 16. His death was followed by a short interregnum; after which Tullus Hostilius, the son or grandson of the famous Hersilia, was unanimously chosen king. Being of a bold and fiery temper, he did not long continue to imitate his peaceful predecessor. The Albans, indeed, soon gave him an opportunity of exercising his martial disposition. Cœlius, or, as he is called by Livy, *Cluilius*, who was at the head of the Alban republic, jealous of the growing greatness of Rome, privately commissioned some of the most indigent of his subjects to waste the Roman territory; in consequence of which, a Roman army entered the territories of Alba, engaged the robbers, killed many, and took a great number prisoners.

31 His war with the Albans.

A war soon commenced, in consequence of this, between the two nations; but when the armies came in sight of each other, their ardour cooled, neither of them seeming inclined to come to an engagement. This inaction raised a great discontent in the Alban army against Cluilius; insomuch that he came to a resolution of giving battle to the Romans next morning, or of storming their trenches if they should decline it. Next morning, however, he was found dead in his bed; after which the Albans chose in his stead one Mettus Fuffetius, a man remarkable for his hatred to the Roman name, as Cluilius had been before him. Fuffetius, however continued in the same state

ſtate of inactivity as his predeceſſor, until he received certain intelligence that the Veientes and Fidenates had reſolved to deſtroy both Romans and Albans when they ſhould be weakened by a battle. Fuffetius then reſolved to come to an accommodation with the Romans; and, having obtained a conference with Tullus, both ſeemed equally deſirous of avoiding the calamities of war. But, in order to eſtabliſh the peace on the moſt perfect foundation, Tullus propoſed that all, or at leaſt the chief families in Alba, ſhould remove to Rome; or, in caſe they were unwilling to leave their native city, that one common council ſhould be eſtabliſhed to govern both cities, under the direction of one of the two ſovereigns. Fuffetius took aſide thoſe who attended him, to conſult with them about this propoſal; but they, though willing to come to an accommodation with Rome, abſolutely refuſed to leave Alba. The only difficulty remaining, then, was to ſettle which city ſhould have the ſuperiority; and, as this could not be determined by argument, Tullus propoſed to determine it by ſingle combat betwixt himſelf and Fuffetius. This propoſal, however, the Alban general thought proper to decline; and it was at laſt agreed, that three champions ſhould be choſen out of each camp to decide the difference. This produced the famous combat between the Horatii and Curiatii, by which the ſovereignty was decided in favour of Rome. See HORATII.

Tullus now reſolved to call the Fidenates to an account for their treacherous behaviour during the war with Alba, and therefore cited them to appear before the ſenate; but they, conſcious of their guilt, refuſed to appear, and took up arms in conjunction with the Veientes. Fuffetius, in obedience to the orders of Tullus, joined him with the Alban troops; but the day before the battle, he acquainted the principal officers with his deſign, which was to ſtand neuter till fortune had declared for one ſide, and then to join with the conqueror. This deſign being approved, Fuffetius, during the engagement, retired with his forces to a neighbouring eminence. Tullus perceived his treachery; but diſſembling his uneaſineſs, told his men that Fuffetius had poſſeſſed himſelf of that hill by his order, and that he was from thence to ruſh down upon the enemy. The Veientes, in the mean time, who had expected that Fuffetius was to join them, were diſmayed, and the Romans obtained the victory. After the battle, Tullus returned privately to Rome in the night; and having conſulted with the ſenate about the treachery of Fuffetius, returned to the camp by break of day. He then detached Horatius, who had conquered the three Curiatii, with a choſen body of horſe and foot, to demoliſh Alba, as had been concerted at Rome. In the mean time, he commanded both the Roman and Alban troops to attend him unarmed, but gave private orders to the Romans to bring their ſwords concealed under their garments. When they were aſſembled, he laid open the treachery of Fuffetius, and ordered him to be torn in pieces by horſes. His accomplices were all put to the ſword; and the inhabitants of Alba carried to Rome, where they were admitted to the privileges of citizens, and ſome of them even admitted to the ſenate.

32 Alba demoliſhed, and the inhabitants tranſported to Rome.

Tullus now turned his arms againſt Fidenæ, which he again reduced under the Roman yoke; and took Medulia, a ſtrong city of the Latins; after which he waged a ſucceſsful war with the Sabines, whoſe union with the Romans ſeems to have ceaſed with the time of Numa. This was the laſt of his martial exploits; after which we hear no more of him, but that he became extremely ſuperſtitious in his advanced years, giving ear to many fooliſh ſtories, as that it rained ſtones, that miraculous voices were heard from heaven, &c. and for this he appointed nine days expiatory ſacrifices; whence it became a cuſtom to appoint nine days to appeaſe the wrath of the gods as often as men were alarmed with prodigies. As to the manner of his death authors are not agreed. Some tell us that he was killed by lightning, together with his wife, children, and his whole family; while others are of opinion that he was murdered with his wife and children by Ancus Martius who ſucceeded him. He died after a reign of 33 years, leaving the city greatly increaſed, but the dominions much the ſame as they had been in the time of Romulus.

33 Death of Tullus, who is ſucceeded by Ancus Martius.

After a ſhort interregnum, Ancus Martius, the grandſon of Numa by his daughter Pompilia, and Marcus his relation, was unanimouſly choſen by the people and ſenate. Though naturally inclined to war, he began his reign with attempting to reſtore the ceremonies of Numa, which had been neglected under Tullus Hoſtilius. He endeavoured alſo to draw the attention of his people to huſbandry and the peaceful arts; adviſing them to lay aſide all ſorts of violence, and to return to their former employments. This gained him the affections of his ſubjects, but brought upon him the contempt of the neighbouring nations. The Latins, pretending that their treaty with Rome was expired, made inroads into the Roman territories. Ancus, after uſing the ceremonies directed by Numa, took the field with an army conſiſting entirely of new levied troops, and reduced the cities of Politorium, Tillena, and Ficana, tranſplanting the inhabitants to Rome. A new colony of Latins repeopled Politorium; but Ancus retook the place next year, and entirely demoliſhed it. He then laid ſiege to Medulia; which, though it had been ruined by Tullus Hoſtilius, was now ſtronger than ever. It ſubmitted after a ſiege of four years, when Ancus found himſelf obliged to undertake a ſecond expedition againſt Ficana, which he had before reduced, as we have already related; and it was not without the utmoſt difficulty that he reduced it a ſecond time. After this he defeated the Latins in a pitched battle; vanquiſhed the Fidenates, Veientes, and Sabines; and having taken in the hill Janiculum to be included within the walls, and built the port of Oſtia, he died in the 24th year of his reign.

34 His warlike exploits and death.

Ancus Martius left two ſons behind him, one an infant, and the other about 15 years of age. Both of theſe he put under the tuition of Tarquin, the ſon of a rich merchant in Corinth, who had fled from that city to ſecure his wealth from Cypſelus tyrant of the place. He ſettled in Tarquinii, one of the principal cities in Hetruria; but finding that he could not there attain to any of the principal poſts in the city on account of his foreign extraction, he removed to Rome, where he had been gradually raiſed to the rank of patrician and ſenator. The death of Ancus Martius gave him an opportunity of aſſuming the regal dignity, and ſetting aſide his pupils; and in the beginning of his reign he took

35 His ſons ſupplanted by Tarquin.

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took care to ſtrengthen his party in the ſenate by adding another hundred to that body. Theſe were called *ſenatores minorum gentium*, becauſe they were choſen out of the plebeians; however, they had the ſame authority in the ſenate as the others, and their children were called *patricians*.

36 Tarquin's ſucceſs in war.

Tarquin was not inferior to any of his predeceſſors either in his inclination or abilities to carry on a war. As ſoon as he aſcended the throne, he recommenced hoſtilities with the Latins; from whom he took the cities of Apiolæ, Cruſtuminum, Nomentum, and Collatia. The inhabitants of Apiolæ were ſold for ſlaves; but thoſe of Cruſtuminum and Nomentum, who had ſubmitted after their revolt, were treated with great clemency. The inhabitants of Collatia were diſarmed, and obliged to pay a large ſum of money; the ſovereignty of it, in the mean time, being given to Egerius, the ſon of Arunx, Tarquin's brother; from whence he took the name of *Collatinus*, which he tranſmitted to his poſterity. Corniculum, another city of Latium, was taken by ſtorm, and reduced to aſhes. This progreſs having greatly alarmed the Latins, ſeveral of them joined their forces in order to oppoſe ſuch a formidable enemy; but being defeated in a bloody battle near Fidenæ, they were obliged to enter into an alliance with Rome; upon which the Latins having held a national conference, entered into a league with the Hetrurians, and again took the field with a very numerous army. But Tarquin, having defeated the confederate armies in two very bloody battles, obliged the Latin cities to ſubmit to a kind of dependence on Rome; and, having entered the city in triumph, built the circus maximus with the ſpoils which he had taken from the enemy.

The war with the Latins was ſcarce ended, when another commenced with Hetruria. This was accounted the moſt powerful nation in Italy, and was at that time divided into 12 tribes or lucomonies. Theſe appointed a national aſſembly, in which it was decreed that the whole force of Hetruria ſhould be employed againſt Tarquin; and if any city preſumed only to ſtand neuter, it ſhould be for ever cut off from the national alliance. Thus a great army was raiſed, with which they ravaged the Roman territory, and took Fidenæ by the treachery of ſome of its inhabitants. Tarquin, not being in a condition to oppoſe them at firſt, was obliged to ſubmit to the loſs occaſioned by their ravages for a whole year; after which he took the field with all the forces he could raiſe. The Roman army was divided into two bodies, one under the king himſelf, the other commanded by his nephew Collatinus. The latter, having divided his forces in order to plunder the country, was defeated; but Tarquin, in two engagements, vanquiſhed the army which oppoſed him. He then marched againſt Fidenæ, where he gained a third battle; after which he took the city. Such of the citizens as were ſuſpected to have been concerned in betraying it to the enemy were whipped to death; the reſt were ſent into baniſhment, and their lands divided by lot among the Roman ſoldiers. Tarquin now haſtened to oppoſe the new army of the Hetrurians before their forces could be properly collected; and having come up with them at Eretum, a place about 10 miles from Rome, defeated them with great ſlaughter, for which victory he was decreed a triumph by the ſenate; while the enemy, diſheartened by ſo many misfortunes, were glad to ſue for peace; which Tarquin readily granted, upon the ſole condition of their owning his ſuperiority over them. In compliance with this, the Hetrurians ſent him all the enſigns of royalty which were in uſe among them, viz. a crown of gold, a throne of ivory, a ſceptre with an eagle on the top of it, a tunic embroidered with gold, and adorned with figures of palm-branches, together with a purple robe enriched with flowers of ſeveral colours. Tarquin, however, would not wear theſe magnificent ornaments till ſuch time as the ſenate and people had conſented to it by an expreſs law. He then applied the regalia to the decoration of his triumph, and never afterwards laid them aſide. In this triumph he appeared in a gilt chariot, drawn by four horſes, clothed in a purple robe, and a tunic embroidered with gold, a crown on his head, and a ſceptre in his hand, attended by 12 lictors with their axes and faſces.

37 Enſigns royalty him by Hetruria.

Tarquin, having now obtained ſome reſpite from war, applied himſelf to the beautifying and ornamenting the city. He built the walls of Rome with hewn ſtone, and erected thoſe famous common ſewers which have deſervedly been accounted one of the wonders of the world. Rome at this time contained four hills within its compaſs, viz. the Palatinus, Tarpeius, Quirinalis, and Cœlius. In the valleys between theſe hills, the rain-water and ſprings uniting, formed great pools which laid under water the ſtreets and public places. The mud likewiſe made the way impaſſable, infected the air, and rendered the city unhealthy. Tarquin undertook to free the city from this nuiſance, by conveying off theſe waters by ſubterraneous channels into the Tiber. In doing this, it was neceſſary to cut thro' hills and rocks a channel large enough for a navigable ſtream, and covered with arches ſtrong enough to bear the weight of houſes, which were frequently built upon them, and ſtood as firm as on the moſt ſolid foundations. All theſe arches were made of hard ſtone, and neither trouble nor expence were ſpared to make the work durable. Their height and breadth were ſo conſiderable, that a cart loaded with hay could eaſily paſs through them under ground. The expence of conſtructing theſe ſewers was never ſo thoroughly underſtood as when it became neceſſary to repair them; for then the cenſors gave no leſs than 1000 talents to the perſon appointed for this purpoſe.

38 Builds the common ſewers, and ornaments the city.

Beſides theſe great works, Tarquin adorned the forum, ſurrounding it with galleries in which were ſhops for tradeſmen, and building temples in it for the youth of both ſexes, and halls for the adminiſtration of public juſtice. He next engaged in a war with the Sabines, on pretence that they had aſſiſted the Hetrurians. Both armies took the field, and came to an engagement on the confines of Sabinia, without any conſiderable advantage on either ſide; neither was any thing of conſequence done during the whole campaign. Tarquin then, conſidering with himſelf that the Roman forces were very deficient in cavalry, reſolved to add ſome new bodies of knights to thoſe already inſtituted by Romulus. But this project met with great oppoſition from the ſuperſtitious augurs, as the original diviſion of horſe into three bodies had been determined by auguries; and Actius Nævius, the chief of the

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the diviners at that time, violently oppofed the king's will. On this Tarquin, defirous to expofe the deceit of thefe people, fummoned Nævius before an affembly of the people, and defired him to fhow a fpecimen of his art, by telling the king if what he thought of at that time could be done or not. The augur replied, after confulting his birds, that the thing was very poffible. On which Tarquin told him, that he had been thinking whether it was poffible to cut a flint with a razor; pulling at the fame time a razor and flint from below his robe. This fet the people a-laughing; but Nævius gravely defiring the king to try it, he was furprifed to find that the flint yielded to the razor; and that with fo much eafe as to draw blood from his hand. The people teftified their furprife by loud acclamations, and Tarquin himfelf continued to have a great veneration for augurs ever after. A ftatue of brafs was erected to the memory of Nævius, which continued till the time of Auguftus; the razor and flint were buried near it, under an altar, at which witneffes were afterwards fworn in civil caufes.

This adventure, whatever was the truth of it, caufed Tarquin to abandon his defign of increafing the number of bodies of horfe, and content himfelf with augmenting the number in each body. He then renewed the war with the Sabines, ravaged their country, defeated them in three pitched battles, obliging them at laft to fubmit to him and put him in poffeffion of their country. In the decline of life he employed himfelf in further decorating the city, building temples, &c. He was affaffinated in his palace, in the 80th year of his age, by the fons of Ancus Martius, whom he had originally deprived of the kingdom.

After the death of Tarquin I. his wife Tanaquil preferved the kingdom to her fon in-law Servius Tullius, by artfully giving out that the king was only ftunned, and would foon recover; upon which the fons of Ancus went voluntarily into banifhment. The fecond day after his deceafe, Servius Tullius heard caufes from the throne in the royal robes and attended by the lictors; but as he pretended only to fupply the king's place till he fhould recover, and thought it incumbent on him to revenge the wicked attempt upon his life, he fummoned the fons of Ancus to appear before his tribunal; and on their non-appearance, caufed them to be declared infamous, and their eftates to be confifcated. After he had thus managed matters for fome time in fuch a manner as to engage the affections of the people, the death of Tarquin was publifhed as a thing that had newly happened, and Servius Tullius affumed the enfigns of royalty, having none to difpute the honour with him.

The new king fhowed himfelf every way worthy of the throne. No fooner were the Hetrurians informed of Tarquin's death, than they fhook off the yoke; but Servius quickly reduced them to obedience, depriving them of their lands, which he fhared among the poor Roman citizens who had none. For this he was decreed a triumph by the people, in fpite of the oppofition of the fenate, who could never be brought to approve of his election to the kingdom, though he was foon after legally chofen by the tribes.

After Servius had obtained the fanction of the popular voice, he marched a fecond time againft the revolted Hetrurians; and having again vanquifhed them, was decreed another triumph. He then applied himfelf to the enlarging and adorning the city. To the hills Palatinus, Tarpeius, Quirinalis, Cœlius, and Aventinus, he added the Efquilinus and Viminalis, fixing his own palace on the Efquilinus, in order to draw inhabitants thither. He likewife added a fourth tribe, which he called *Tribus Efquilina*, to thofe inftituted by Romulus. He divided alfo the whole Roman territory into diftinct tribes, commanding that there fhould be at leaft one place of refuge in each tribe, fituated on a rifing ground, and ftrong enough to fecure the effects of the peafants in cafe of a fudden alarm. Thefe ftrong-holds he called *pagi*, that is, "villages;" and commanded that each of them fhould have their peculiar temple, tutelary god, and magiftrates. Each of them had likewife their peculiar feftival, called *paganalia;* when every perfon was to pay into the hands of thofe who prefided at the facrifices a piece of money, the men of one kind, the women of another, and the children of a third. By this means an exact computation was made of the men, women, and children, in each tribe.

42 Enlarges the city, and adds a fourth tribe to those already instituted.

In the mean time, his two wards, Lucius Tarquinius and Arunx, the grandchildren of Tarquin, being grown up, in order to fecure their fidelity, he married them to his two daughters. And though the elder of thefe daughters, who was of a mild and tractable difpofition, refembled in character the younger of his pupils, as the elder of his pupils did the younger of his daughters, who was of a violent and vicious temper, yet he thought it advifable to give his elder daughter to Tarquin, and the younger to Arunx; for by that means he matched them according to their ages, and at the fame time hoped that the elder Tullia's fweet difpofition would temper Tarquin's impetuofity, and the younger Tullia's vivacity roufe the indolence of Arunx.

Durmg the public rejoicing for this double marriage, the twelve lucumonies of Hetruria uniting their forces, attempted to make off the Roman yoke; but were in feveral battles defeated by Servius, and obliged to fubmit to him on the fame conditions on which they had fubmitted to his predeceffor. For this fuccefs Servius was honoured with a third triumph.

43 Reforms the ftate.

The king being thus difengaged from a troublefome war, returned to the purfuit of his political fchemes; and put in execution that mafterpiece of policy which Rome made ufe of ever after, and which eftablifhed a perpetual order and regularity in all the members of the ftate, with refpect to wars, to the public revenues, and the fuffrages of the comitia. The public fupplies had hitherto been raifed upon the people at fo much an head, without any diftinction of rich and poor; whence it likewife followed, that when levies were made for the war, the rich and poor were equally obliged to take the field, according to the order of their tribe; and as they all ferved at their own expence, the poorer fort could hardly bear the charges of a campaign. Befides, as the moft indigent of the people faw themfelves burdened with the fame taxes as the rich, they pretended to an equal authority in the comitia: fo that the election of kings and magiftrates, the making of peace or war, and the judging of criminals, were given up into the hands of a populace who were eafily corrupted, and had nothing to lofe. Servius formed a project to remedy

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by those evils, and put it in execution, by enacting a law, enjoining all the Roman citizens to bring in an account in writing of their own names and ages, and of those of their fathers, wives, and children. By the same law, all heads of families were commanded to deliver in upon oath a just estimate of their effects, and to add to it the places of their abode, whether in town or country. Whoever did not bring in an account of his effects, was to be deprived of his estate, to be beat with rods, and publicly sold for a slave. Servius, from these particular accounts, which might be pretty well relied on, undertook to ease the poor by burdening the rich, and at the same time to please the latter by increasing their power.

44 His division of the people into classes.

To this end, he divided the Roman people into six classes: the first class consisted of those whose estates and effects amounted to the value of 10,000 drachmæ, or 100,000 ases of brass; the first way of computing being used by the Greeks, and the latter by the Latins. This class was subdivided into 80 centuries, or companies of foot. To these Servius joined 18 centuries of Roman knights, who fought on horseback; and appointed this considerable body of horsemen to be at the head of the first class, because the estates of these knights, without all doubt, exceeded the sum necessary to be admitted into it. However, the public supplied them with horses; for which a tax was laid upon widows, who were exempt from all other tributes. This first class, including infantry and cavalry, consisted of 98 centuries. The second class comprehended those whose estates were valued at 5700 drachmæ, or 75,000 ases of brass. It was subdivided into 20 centuries, all foot. To these were added two centuries of carpenters, smiths, and other artificers. In the third class were those who were esteemed worth 5000 drachmæ, or 50,000 ases. This class was subdivided into 20 centuries. The fourth class was of those whose effects were rated at the value of 500 drachmæ, or 25,000 ases, and was divided into 20 centuries; to which were added two other centuries of trumpets, and blowers of the horn, who supplied the whole army with this martial music. The fifth class included those only whose whole substance did not amount to more than 1250 drachmæ, or 12,500 ases; and this class was divided into 30 centuries. The sixth class comprehended all those who were not worth so much as those of the fifth class: they exceeded in number any other class, but nevertheless were reckoned but as one century.

The king drew from these regulations all the advantages he had expected. Levies for the army were no longer raised by tribes, nor were taxes laid at so much a head as formerly, but all was levied by centuries. When, for instance, an army of 20,000 men, or a large supply of money, was wanted for the war, each century furnished its quota both of men and money: so that the first class, which contained more centuries, though fewer men, than all the others together, furnished more men and more money for the public service than the whole Roman state besides. And by this means the Roman armies consisted for the most part of the rich citizens of Rome; who, as they had lands and effects to defend, fought with more resolution, while their riches enabled them to bear the expence of a campaign. As it was but just the king should make the first class amends for the weight laid on it, he gave it almost the whole authority in public affairs; changing the comitia by curiæ, in which every man gave his vote, into comitia by centuries, in which the majority was not reckoned by single persons, but by centuries, how few soever there might be in a century. Hence the first class, which contained more centuries than the other five taken together, had every thing at its disposal. The votes of this class were first taken; and if the 98 centuries happened to agree, or only 97 of them, the affair was determined; because these made the majority of the 193 centuries which composed the six classes. If they disagreed, then the second, the third, and the other classes in their order, were called to vote, though there was very seldom any occasion to go so low as the fourth class for a majority of votes: so that by this good order Servius brought the affairs of the state to be determined by the judgment of the most considerable citizens, who understood the public interest much better than the blind multitude, liable to be imposed upon, and easily corrupted.

45 The census and lustrum.

And now the people being thus divided into several orders, according to the census or valuation of their estates, Servius resolved to solemnize this prudent regulation by some public act of religion, that it might be the more respected and the more lasting. Accordingly, all the citizens were commanded to appear, on a day appointed, in the Campus Martius, which was a large plain, lying between the city and the Tiber, formerly consecrated by Romulus to the god Mars. Here the centuries being drawn up in battalia, a solemn lustration or expiatory sacrifice was performed in the name of all the people. The sacrifice consisted of a sow, a sheep, and a bull, whence it took the name of *suovetaurilia*. The whole ceremony was called *lustrum, à luendo*; that is, from paying, expiating, clearing, or perhaps from the goddess Lua, who presided over expiations, and to whom Servius had dedicated a temple. This wise king considering, that in the space of five years there might be such alterations in the fortunes of private persons as to entitle some to be raised to an higher class, and reduce others to a lower, enjoined that the census should be renewed every five years. As the census was usually closed by the lustrum, the Romans henceforth began to compute time by lustrums, each lustrum containing the space of five years. However, the lustrums were not always regularly observed, but often put off, though the census had been made in the fifth year. Some writers are of opinion, that Servius at this time coined the first money that had ever appeared at Rome; and add, that the circumstances of the lustrum probably led him to stamp the figures of the animals there slain on pieces of brass of a certain weight.

46 The freemen.

The government of the city being thus established in so regular a manner, Servius, touched with compassion for those whom the misfortunes of an unsuccessful war had reduced to slavery, thought that such of them as had by long and faithful services deserved and obtained their freedom, were much more worthy of being made Roman citizens, than untractable vagabonds from foreign countries, who were admitted without distinction. He therefore gave the freedmen their choice, either to return to their own country, or continue at Rome. Those who chose to continue there, he divided into four tribes, and settled them within the city;

and though they were distinguished from the plebeians by their old name of *liberti*, or *freedmen*, yet they enjoyed all the privileges of free citizens. The senate took offence at the regard which the king showed to such mean people, who had but lately shaken off their fetters; but Servius, by a most humane and judicious discourse, entirely appeased the fathers, who passed his institution into a law, which subsisted ever after.

The wise king, having thus established order among the people, undertook at last to reform the royal power itself; his equity, which was the main spring of all his resolutions, leading him to act contrary to his own interest, and to sacrifice one half of the royal authority to the public good. His predecessors had referred to themselves the cognizance of all causes both public and private; but Servius, finding the duties of his office too much for one man to discharge well, committed the cognizance of ordinary suits to the senate, and reserved that only of state-crimes to himself.

All things being now regulated at home, both in the city and country, Servius turned his thoughts abroad, and formed a scheme for attaching the Sabines and Latins to the Romans, by such social ties as should be strengthened by religion. He summoned the Latin and Sabine cities to send their deputies to Rome, to consult about an affair of great importance. When they were come, he proposed to them the building of a temple in honour of Diana, where the Latins and Sabines should meet once a year, and join with the Romans in offering sacrifices to that goddess; that this festival should be followed by a council, in which all disputes between the cities should be amicably determined; that there proper measures should be taken to pursue their common interest; and, lastly, in order to draw the common people thither, a fair should be kept, at which every one might furnish himself with what he wanted. The king's design met with no opposition: the deputies only added to it, that the temple should be an inviolable asylum for the united nations; and that all the cities should contribute toward the expence of building it. It being left to the king to choose a proper place for it, he pitched upon the Aventine hill, where the temple was built, and assemblies annually held in it. The laws which were to be observed in these general meetings were engraved on a pillar of brass, and were to be seen in Augustus's time, in the Latin tongue, but in Greek characters.

But now Servius was grown old; and the ambition of Tarquin his son-in-law revived in proportion as the king advanced in years. His wife used her utmost endeavours to check the rashness and fury of her husband, and to divert him from all criminal enterprises; while her younger sister was ever instigating Arunx, who placed all his happiness in a private life, to the most villanous attempts. She was continually lamenting her fate in being tied to such an indolent husband, and wishing she had either continued unmarried, or were become a widow. Similitude of temper and manners, formed, by degrees, a great intimacy between her and Tarquin. At length she proposed nothing less to him than the murdering of her father, sister, and husband, that they two might meet and ascend the throne together. Soon after, they paved their way to an incestuous marriage, he by poisoning his wife, and she her husband; and then had the assurance to ask the king's and queen's consent to their marriage. Servius and Tarquinia, though they did not give it, were silent, through too much indulgence to a daughter in whom now was their only hope of posterity. But these criminal nuptials were only the first step towards a yet greater iniquity. The wicked ambition of the new-married couple first showed itself against the king: for they publicly declared, that the crown belonged to them; that Servius was an usurper, who, being appointed tutor to Tarquin's grandchildren, had deprived his pupils of their inheritance; that it was high time for an old man, who was but little able to support the weight of public affairs, to give place to a prince who was of a mature age, &c.

The patricians, whom Servius had taken great pleasure in humbling during the whole time of his reign, were easily gained over to Tarquin's party; and, by the help of money, many of the poorer citizens were also brought over to his interest. The king, being informed of their treasonable practices, endeavoured to dissuade his daughter and son-in-law from such proceedings, which might end in their ruin; and exhorted them to wait for the kingdom till his death. But they, despising his counsels and paternal admonitions, resolved to lay their claim before the senate; which Servius was obliged to summon: so that the affair came to a formal process. Tarquin reproached his father-in-law with having ascended the throne without a previous interregnum; and with having bought the votes of the people, and despised the suffrages of the senate. He then urged his own right of inheritance to the crown, and injustice of Servius, who, being only his guardian, had kept possession of it, when he himself was of an age to govern. Servius answered, that he had been lawfully elected by the people; and that, if there could be an hereditary right to the kingdom, the sons of Ancus had a much better one than the grandsons of the late king, who must himself have been an usurper. He then referred the whole to an assembly of the people; which being immediately proclaimed all over the city, the forum was soon filled; and Servius harangued the multitude in such a manner as gained all their affections. They all cried out with one voice, *Let Servius reign; let him continue to make the Romans happy.* Amidst their confused clamours, these words were likewise heard: *Let Tarquin perish; let him die; let us kill him.* This language frightened him so, that he retired to his house in great haste; while the king was conducted back to his palace with the acclamations of the people.

The ill success of this attempt cooled Tarquin's ardent desire of reigning; but his ambition made him act a new part. He undertook to regain the favour of his father-in-law by caresses, submissions, and protestations of a sincere regard and affection for him; insomuch that the king, who judged of the policy of others from his own, was sincerely reconciled to him, and tranquillity re-established in the royal family. But it was not long ere Tarquin, roused by the continual reproaches of his wife, began to renew his intrigues among the senators; of whom he had no sooner gained a considerable party, than he clothed himself in the royal robes, and causing the fasces to be carried before him by some of his domestics, crossed the Roman forum, entered the temple where the senate used to meet, and seated him-

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ſelf on the throne. Such of the ſenators as were in the faction he found already in their places (for he had given them private notice to be there early); and the reſt, being ſummoned to aſſemble in Tarquin's name, made what haſte they could to the appointed place, thinking that Servius was dead, ſince Tarquin aſſumed the title and functions of king. When they were all aſſembled, Tarquin made a long ſpeech, reviling his father in-law, and repeating the invectives againſt him, which he had ſo often uttered, calling him a ſlave, an uſurper, a favourer of the populace, and an enemy to the ſenate and patricians. When he was yet ſpeaking, Servius arrived; and, raſhly giving way to the motions of his courage, without conſidering his ſtrength, drew near the throne, to pull Tarquin down from it. This raiſed a great noiſe in the aſſembly, which drew the people into the temple; but nobody ventured to part the two rivals. Tarquin therefore, being more ſtrong and vigorous, ſeized the old man by the waiſt, and, hurrying him through the temple, threw him down from the top of the ſteps into the forum. The king, who was grievouſly wounded, raiſed himſelf up with ſome difficulty: but all his friends had abandoned him; only two or three of the people, touched with compaſſion, lent him their arms to conduct him to his palace.

As they were leading him on ſo ſlowly, the cruel Tullia appeared in the forum, whither ſhe had haſtened in her chariot on the firſt report of what had paſſed in the ſenate. She found her huſband on the top of the ſteps of the temple; and, tranſported with joy, was the firſt who ſaluted him king. The example was immediately followed by the ſenators of Tarquin's party. Nor was this enough for the unnatural daughter: ſhe took aſide her huſband, and ſuggeſted to him, that he would never be ſafe ſo long as the uſurper of his crown was alive. Hereupon Tarquin inſtantly diſpatched ſome of his domeſtics to take away the remains of the unfortunate king's life. The orders for the wicked parricide were no ſooner given than Tullia mounted her chariot again, with an air of triumph, to return home. The way to her houſe was through a narrow ſtreet, called *vicus cyprius*, or the *good ſtreet*. There the aſſaſſins had left the king's body, which was ſtill panting. At this ſight, the charioteer, ſtruck with horror, checked his horſes, and made a ſtop: but Tullia forced him to go on; and the blood of the father is ſaid to have dyed the wheels of the chariot, and even the clothes of the inhuman daughter, whence the ſtreet was called ever after *vicus ſceleratus*.

50 Servius Tullius murdered.

51 Tarquin II. a cruel tyrant.

The new king proved a moſt deſpotic and cruel tyrant; receiving, in the very beginning of his reign, the ſurname of *proud*, on account of his capricious humour and haughty behaviour. All controverſies whatever were decided by himſelf and his friends; and he baniſhed, fined, and even executed, whom he pleaſed. The cenſus and luſtrum, the diviſion of citizens into claſſes and centuries, were aboliſhed; and all kinds of aſſemblies, even thoſe for amuſement and recreation, were prohibited, both in town and country. Nay, to ſuch a height did Tarquin carry his inſolence and tyranny, that the moſt virtuous of the ſenators went into voluntary baniſhment; while many of thoſe who remained were cut off on various pretences, that the king might enjoy their eſtates.

Tarquin could not but be ſenſible of the extreme danger in which he ſtood by loſing the affections of his people in ſuch a manner. He therefore provided a ſufficient number of ſoldiers, by way of guard, to prevent attempts upon his perſon; and gave his daughter to Octavius Mamilius, one of the moſt conſiderable men among the Latins, in order to ſtrengthen his intereſt by this foreign alliance, in caſe of a revolt among his ſubjects. Mamilius accordingly procured many friends to his father-in-law, but he had like to have loſt them again by his haughty behaviour. He had deſired the Latins to call a national council at Ferentinum, where he would meet them on a day appointed by himſelf. The Latins accordingly met; but after waiting for ſeveral hours, Tarquin did not appear. On this, one Turnus Herdonius, an enterpriſing and eloquent man, who hated Tarquin, and was jealous of Mamilius, made a ſpeech, in which he inveighed againſt the haughty behaviour of Tarquin, ſet forth the contempt which he had put upon the Latins, and concluded with deſiring the council to break up and return home without taking any further notice of him. Mamilius, however, prevailed upon them to return the day following; when Tarquin made his appearance, and told the aſſembly that his deſign in calling them together was to claim his right of commanding the Latin armies, which he ſaid was derived from his grandfather, but which he deſired to be confirmed to him by them. Theſe words were ſcarce out of his mouth, when Herdonius, riſing up, entered into a detail of Tarquin's tyranny and arbitrary behaviour at Rome, which, he ſaid, the Latins would ſoon feel in an equal degree, if they complied with Tarquin's demand. To this ſpeech the king made no reply at that time, but promiſed to anſwer him next day. In the mean time, however, he bribed the domeſtics of Herdonius to admit among his baggage a large quantity of arms: and then, telling the Latins that Herdonius's oppoſition proceeded only from Tarquin's having refuſed him his daughter in marriage, accuſed him of having laid a plot to cut off all the deputies there preſent, and to uſurp a juriſdiction over the Latin cities; as a proof of which he appealed to the arms hid among the baggage of Herdonius. The accuſed, conſcious of his innocence, deſired that his baggage might be ſearched; which being accordingly done, and the arms found, he was hurried away without being allowed to make any defence, and thrown into a baſon at the head of the ſpring of Ferentinum, where a hurdle being laid upon him, and ſtones laid upon the hurdle, he was preſſed down into the water and drowned.

His mou tage deſtr Here

In conſequence of this monſtrous treachery, Tarquin was looked upon by the Latins as their deliverer, and declared general of the Latin armies; ſoon after which, the Hernici and two tribes of the Volſci entered into an alliance with him on the ſame terms. In order to keep theſe confederates together, Tarquin, with their conſent, erected a temple to Jupiter Latialis on an hill near the ruins of Alba, where he appointed certain feaſts called *Feriæ Latinæ* to be held on the 27th of April, where the ſeveral nations were to ſacrifice together, and on no account to commit any hoſtilities againſt each other during their continuance. The king then proceeded to make war on the reſt of the Volſci who had refuſed to enter into an alliance with him. Some depredations which they had committed in the territo-

Inſtitu the La Latin

ries of the Latins served for a pretence to begin the war; but as Tarquin had no confidence in the Romans, his army was composed only of a small body of them who were incorporated among the Latin auxiliaries. However, he defeated the enemy, took one of their cities by storm, and gave the booty to his soldiers. He next turned his arms against the Sabines, whom he entirely defeated in two engagements, and made the whole nation tributary; for which exploits he decreed himself two triumphs, and on his return to Rome he employed the populace in finishing the sewers and circus which had been begun by his grandfather Tarquin I.

In the mean time, the persecutions of Tarquin against his own subjects daily drove some of the most considerable into banishment. A great number of patricians took refuge in Gabii, a city of Latium about 13 miles from Rome; where the inhabitants, touched with compassion for their misfortunes, not only received them with kindness, but began a war with Tarquin on their account. The Gabini seem to have been the most formidable enemies whom the Romans had hitherto met with; since Tarquin was obliged to raise a prodigious bulwark to cover the city on the side of Gabii. The war lasted seven years; during which time, by the mutual devastations committed by the two armies, a great scarcity of provisions took place in Rome. The people soon grew clamorous; and Tarquin being unable either to quiet them, or to reduce the Gabini, fell upon the following dishonourable and treacherous expedient. His son Sextus Tarquinius pretended to be on very bad terms with his father, and openly inveighed against him as a tyrant; on which he was proclaimed a rebel, and publicly beaten in the forum. This being reported at Gabii, by persons sent thither on purpose, the inhabitants became very desirous of having Sextus among them; and accordingly he soon went thither, having previously obtained a solemn promise from the inhabitants never to deliver him up to his father. Here he made frequent inroads into the Roman territories, and always came back laden with spoil, his father sending against him only such weak parties as must infallibly be worsted. By this means he soon came to have such a high degree of credit among the Gabini, that he was chosen general of their army, and was as much master at Gabii as Tarquin was at Rome. Finding then that his authority was sufficiently established, he dispatched a slave to his father for instructions; but the king, unwilling to return an explicit answer, only took the messenger into the garden, where he struck off the heads of the tallest poppies. Sextus understood that by this hint the king desired him to put to death the leading men in the city of Gabii, which he immediately put in execution; and while the city was in confusion on account of this massacre, he opened the gates to his father, who took possession of the city with all the pride of a conqueror.—The inhabitants dreaded every thing from the haughty tyranny of the Roman monarch: however, on this occasion he consulted his policy rather than his revenge; granted them their life, liberty, and estates, and even entered into a treaty of alliance with them. The articles were written on the hide of an ox, which was still to be seen in the time of Augustus, in the temple of Jupiter Fidius. After this, however, he made his son Sextus king of Gabii; sending off also his two other sons, Titus and Arunx, the one to build a city at Signia, the other at Circæum, a promontory of the Tyrrhene sea, and both these to keep the Volsci in awe.

For some time Tarquin now enjoyed a profound peace; the Romans, being accustomed to oppression and the yoke of an imperious master, making no opposition to his will. During this interval Tarquin met with the celebrated adventure of the Sibyl; whose books were ever afterwards held in high estimation at Rome, and Tarquin appointed two persons of distinction to take care of them. These were called *Duumviri*: but their number was afterwards increased to 10, when they were called *Decemviri*; and then to 15, when they were termed *Quindecemviri*. At this time also the written civil law had its origin among the Romans; all the statutes enacted by the kings being collected into one body; which, from Papirius the name of the collector, was called the *Papirian* law. The temple of the Capitol was also finished; for which purpose the most skilful architects and workmen were brought from Hetruria, the populace being obliged to serve them in the most laborious parts.

55 Books of the Sibyls.

56 Downfall of the regal power.

We now come to the important revolution which put an end to the regal power at Rome, and introduced a new form of government, to which this city is allowed to owe the greatest part of her grandeur. Tarquin, as we have already seen, had left himself no friends among the rich citizens, by reason of the oppression under which he made them labour; and the populace were equally disaffected on account of their being obliged to labour in his public works. Among the many persons of distinction who had been sacrificed to the avarice or suspicions of Tarquin, was one M. Junius, who had married the daughter of Tarquin I. This nobleman had a son named *L. Junius Brutus*, who escaped the cruelty of the tyrant by pretending to be an idiot, which part he had ever since continued to act. Soon after the finishing of the works abovementioned, a violent plague happening to break out at Rome, Tarquin sent his sons Titus and Arunx to consult the oracle of Delphi; and the princes took Brutus along with them, to divert themselves with his pretended folly by the way. Brutus chose for his offering to the Delphic Apollo a stick of elder; which occasioned much laughter. However, he had the precaution to inclose a rod of gold within the stick; and to this probably it was owing, that the priestess gave the princes the following riddle, that he who should first kiss his mother should succeed Tarquin in the government of Rome. This answer had been given to their inquiries concerning the succession; upon which the two brothers either drew lots which of them should kiss their mother at their return, or agreed to do it at once, that both might reign jointly: but Brutus, imagining the oracle had another meaning, fell down and kissed the earth, the common mother of all living. This, in all probability, the priestess had meant; and had given the answer on purpose to have another proof of Brutus's ingenuity, which had already discovered itself, by his offering the elder stick.

On the return of the princes to Rome, they found their father engaged in a war with the Rutuli. The treasury being exhausted by the sums which Tarquin had expended in his public works, he had marched to

Rome.

Ardea, the capital of that nation, which lay about 20 miles from Rome, in hopes of taking it without opposition. Contrary to his expectation, however, he was obliged to besiege it in form; and this constrained him to lay a heavy tax upon his subjects, which increased the number of malcontents, and depressed every thing for a time. As the siege was carried on very slowly, the general officers frequently made entertainments for one another in their quarters. One day, when Sextus Tarquinius was entertaining his brothers, the conversation happened to turn upon their wives: every one extolled the good qualities of his own; but Collatinus bestowed such extravagant praises on his Lucretia, that the dispute ended in a kind of quarrel. It was then resolved that they should mount their horses and surprise their wives by their unexpected return. The king's daughters-in-law were employed in feasting and diversion, and seemed much disconcerted by the appearance of their husbands; but Lucretia, though the night was far advanced, was found, with her maids about her, spinning and working in wool. She was not at all discomposed by the company whom her husband brought with him, and they were all pleased with the reception she gave them. As Lucretia was very beautiful, Sextus Tarquinius conceived a passion for her, which resolving to satisfy at all events, he soon returned to Collatia in the absence of Lucretia's husband, and was entertained by her with great civility and respect. In the midst-time he entered Lucretia's apartment, and threatened her with immediate death if she did not yield to his desires. But finding her not to be intimidated with this menace, he told her, that, if she still persisted in her refusal, he would kill one of her male slaves, and lay him naked by her when she was dead, and then declare to all the world that he had only revenged the injury of Collatinus. On this the virtuous Lucretia (who, it seems, dreaded prostitution less than the infamy attending it) submitted to the desires of Sextus; but resolved not to outlive the violence which had been offered her. She dressed herself in mourning, and took a poniard under her robe, having previously wrote to her husband to meet her at her father Lucretius's house, where she refused to discover the cause of her grief except in a full assembly of her friends and relations. Here, addressing herself to her husband Collatinus, she acquainted them with the whole affair; exhorted them to revenge the injury; and protested that she would not outlive the loss of her honour. Every one present gave her a solemn promise that they would revenge her quarrel; but while they endeavoured to comfort her, she suddenly stabbed herself to the heart with the dagger which she had concealed under her robe. See CHASTITY.

57 Lucretia, ravished by Sextus Tarquinius, kills herself.

This extravagant action inflamed beyond measure the minds of all present. Brutus, laying aside his pretended folly, drew the bloody dagger out of Lucretia's body; and, showing it to the assembly, swore by the blood upon it that he would pursue Tarquin and his family with fire and sword: nor would he ever suffer that or any other family to reign in Rome. The same oath was taken by all the company; who were so much surprised at the apparent transition of Brutus from folly to wisdom, that they did whatever he desired them.—By his advice the gates of the city were shut, that nobody might go out of it to inform Tarquin of what was going forward; which, as Lucretius had been left governor of the city by Tarquin, was put in execution without difficulty. The corpse of Lucretia was then exposed to public view; and Brutus having made a speech to the people, in which he explained the mystery of his conduct in counterfeiting folly for many years past, proceeded to tell them that the patricians were come to a resolution of deposing the tyrant, and exhorted them to concur in the same design. The people testified their approbation, and called out for arms; but Brutus did not think proper to trust them with arms till he had first obtained a decree of the senate in favour of the design. This was easily procured: the senate enacted that Tarquin had forfeited all the prerogatives belonging to the regal authority, condemned him and all his posterity to perpetual banishment, and devoted to the gods of hell every Roman who should hereafter, by word or deed, endeavour his restoration; and this decree was unanimously confirmed by the curiæ.

58 Tarquin deposed.

Tarquin being thus deposed, the form of government became the next object. Lucretius was for the present declared *Interrex*; but Brutus being again consulted, declared, that though it was by no means proper for the state to be without supreme magistrates, yet it was equally necessary that the power should not be centered in one man, and that it should not be perpetual. For this reason he proposed, that two magistrates, called *consuls*, should be elected annually; that the state should thenceforth have the name of *republic*; that the ensigns of royalty should be abolished; and that the only ensigns of consular dignity should be an ivory chair, a white robe, and 12 lictors for their attendants. However, that he might not utterly abolish the name of *king*, he proposed that this title should be given to him who had the superintendency of religious matters, who should thenceforth be called *rex sacrorum*, or *king of sacred things*.

59 The form of government changed.

This scheme of Brutus being approved of, Brutus and Collatinus were proposed by Lucretius as the two first consuls, and unanimously accepted by the people, who thought it was impossible to find more implacable enemies to the Tarquins. They entered on their office in the year 508 B. C.; and Tullia, perceiving that now all was lost, thought proper to leave the city, and retire to her husband at Ardea. She was suffered to depart without molestation, though the populace hooted at her, and cursed her as she went along. Tarquin, in the mean time, being informed by some who had got out of Rome before the gates were shut, that Brutus was raising commotions to his prejudice, returned in haste to the city, attended only by his sons and a few friends; but, finding the gates shut, and the people in arms on the walls, he returned again to the camp: but here again, to his surprise, he found that the consuls had taken the opportunity of gaining over the army to their interest; so that, being refused admittance into the camp also, he was forced to fly for refuge, at the age of 76, with his wife and three sons, to Gabii, where Sextus had been made king. Here he continued for some time: but not finding the Latins very forward to revenge his cause, he retired into Hetruria; where, being the country of his mother's family, he hoped to find more friends, and a readier assistance for attempting the recovery of his throne.

60 Tullia leaves Rome.

The

Rome.

61 State of the Roman empire at this time.

The Romans now congratulated themselves on their happy deliverance from tyranny. However, as Tarquin had by his policy procured himself many friends abroad, these now became enemies to the Roman name; and, by the defection of their allies, the Roman dominions were left in much the same state as they had been in the time of Romulus. The territory of Rome had always been confined to a very narrow compass. Though almost constantly victorious in war for 243 years, they had not yet gained land enough to supply their city with provisions. The main strength of the state lay in the number of the citizens of Rome; which the custom of transplanting the inhabitants of the conquered cities thither had so prodigiously increased, that it put the Romans in a condition of usurping the authority over other nations, the most inconsiderable of which had an extent of territory far exceeding theirs. By frequent depredations and incursions they so harassed the petty states of Latium and Hetruria, that many of them were constrained to enter into treaties with Rome, by which they obliged themselves to furnish her with auxiliaries whenever she should be pleased to invade and pillage the lands of her other neighbours. Submissions of this kind the Romans called *making alliances* with them, and these useful alliances supplied the want of a larger territory; but now, upon the change of her government, all the allies of Rome forsook her at once, and either stood neuter, or espoused the cause of the banished king; so that she was now obliged to maintain her liberties as she best might.

The new consuls in the mean time took the most effectual methods they could for securing the liberties of the republic. The army which had been employed in the siege of Ardea marched home under the conduct of Herminius and Horatius, who concluded a truce with the Ardeates for 15 years. The consuls then again assembled the people by centuries, and had the decree of Tarquin's banishment confirmed; a *rex sacrorum* was elected to preside at the sacrifices, and many of the laws of Servius Tullius were revived, to the great joy of the people, who were thus restored to their ancient right of voting in all important affairs. Tarquin, however, resolved not to part with his kingdom on such easy terms. Having wandered from city to city in order to move compassion, he at length made Tarquinii the seat of his residence; where he engaged the inhabitants to send an embassy to Rome, with a modest, submissive letter from himself, directed to the Roman people. The ambassadors represented in such strong terms to the senate how reasonable it was to let the king be heard before he was condemned, and the danger which threatened the state from the neighbouring powers if that common justice were refused, that the consuls inclined to bring these agents before the people, and to leave the decision thereof to the curiæ; but Valerius, who had been very active in the revolution, strenuously opposed this, and by his influence in the senate got it prevented. As that illustrious body had been greatly thinned by the murders committed by Tarquin, new members were elected from among the knights, and the ancient number of 300 again completed. The old senators had been called *patres* or "fathers;" and as the names of the new ones were now written on the same roll, the whole body received the name of *patres conscripti*.

62 Tarquin writes to the Roman people.

The old king was not to be foiled by a single attempt. He prevailed on the inhabitants of Tarquinii to send a second embassy to Rome, under pretence of demanding the estates of the exiles, but with private instructions to get the consuls assassinated. The restoration of the estates of the exiles was opposed by Brutus, but Collatinus was for complying with it; whereupon Brutus accused his colleague of treachery, and of a design to bring back the tyrant. The matter was then referred to the people, where it was carried by one vote in favour of the Tarquins. But whilst the people were employed in loading carriages with the effects of the exiles, and in selling what could not be carried off, the ambassadors found means to draw some of the nearest relations of the consuls into a plot with them. These were three young noblemen of the Aquilian family (the sons of Collatinus's sister), and two of the Vitellii (whose sister Brutus had married); and these last engaged Titus and Tiberius, the two sons of Brutus, in the same conspiracy. They all bound themselves by solemn oaths, with the dreadful ceremony of drinking the blood of a murdered man and touching his entrails. They met at the house of the Aquilii, where they wrote letters to Tarquin and gave them to the ambassadors. But though they used all imaginable precaution, their proceedings were overheard by one Vindicius a slave, who immediately communicated the whole to Valerius; upon which all the criminals were apprehended. Brutus stood judge over his own sons; and, notwithstanding the intercession of the whole assembly, and the tears and lamentations of his children, commanded them to be beheaded; nor would he depart till he saw the execution of the sentence. Having performed this piece of heroic barbarity, he quitted the tribunal, and left Collatinus to perform the rest. Collatinus, however, being inclined to spare his nephews, allowed them a day to clear themselves; and caused Vindicius, the only witness against them, to be delivered up to his masters. This roused the indignation of the people in general, especially of Valerius, who had promised to protect the witness, and therefore he refused to deliver him up to the lictors. The multitude called aloud for Brutus to return; which when he had done, he told them that he had executed his two sons in consequence of his own paternal authority over them, but that it belonged to the people to determine the fate of the rest. Accordingly, by a decree of the curiæ, all the delinquents suffered as traitors except the ambassadors, who were spared out of respect to their character. The slave Vindicius had his liberty granted him; and was presented with 25,000 ases of brass, in value about L. 80 : 14 : 7 of our money. The decree for restoring the estates of the exiled Tarquins was annulled, their palaces were destroyed, and their lands divided among the indigent people. The public only retained a piece of ground, near the Campus Martius, which the king had usurped. This they consecrated to Mars, and it afterwards became a common field where the Roman youth exercised themselves in running and wrestling. But after this consecration, the superstitious Romans scrupled to use the corn which they found there ready reaped to their hands: so that, with some trees, it was thrown into the Tiber; and the water being low, it stopped in the middle of the river, and began to form a fine island named afterwards *Insula Sacra*.

63 A conspiracy formed in his favour.

64 Brutus causes two of his own sons to be beheaded.

The behaviour of Brutus towards his two sons struck such

such a terror into the Romans, that scarce any person dared oppose him; and therefore, as he hated Collatinus, he openly accused him before the people, and without ceremony deposed him from the consulship, banishing him at the same time from Rome. The multitude accorded in every thing he said, and refused to hear Collatinus speak in his own defence; so that the consul was on the point of being driven out with ignominy and disgrace, when Lucretius interposed, and prevailed upon Brutus to allow his colleague quietly to resign the faces, and retire of his own accord from the city. Brutus then, to remove all suspicions of personal enmity, procured him a present of 20 talents out of the public treasury, to which he added five of his own. Collatinus then retired to Lavinium, where he lived in peace, and at last died of old age.

65 Brutus's conduct to Collatinus.

After the abdication of Collatinus, Valerius was chosen in his room; and as his temper agreed much better with Brutus than that of Collatinus, the two consuls lived in great harmony. Nothing, however, could make the dethroned king forego the hope of recovering his kingdom by force. He first engaged the Volsci and Tarquiniensis to join their forces in order to support his rights. The consuls marched out without delay to meet them. Brutus commanded the horse and Valerius the foot, drawn up in a square battalion. The two armies being in sight of each other, Brutus advanced with his cavalry, at the same time that Arunx, one of Tarquin's sons, was coming forward with the enemy's horse, the king himself following with the legions. Arunx no sooner discovered Brutus, than he made towards him with all the fury of an enraged enemy. Brutus advanced towards him with no less speed; and as both were actuated only by motives of hatred, without thoughts of self-preservation, both of them were pierced through with their lances. The death of the two generals served as a prelude to the battle, which continued with the utmost fury till night, when it could not be known which side had got the victory, or which had lost the greatest number of men. A report was spread, however, that a voice had been heard out of a neighbouring wood, declaring the Romans conquerors; and this, probably a stratagem of Valerius, operated so powerfully on the superstitious minds of the Volsci, that they left their camp in confusion, and returned to their own country. It is said that Valerius, having caused the dead to be numbered, found that the Volsci had lost 11,300 men, and the Romans only one short of that number.

66 The Volsci and Tarquiniensis declare in favour of Tarquin.

67 Brutus and Arunx kill each other.

Valerius being left without a colleague in the consulship, and having for some reasons delayed to choose one, began to be suspected by the people of aspiring at the sovereignty; and these suspicions were in some measure countenanced by his building a fine house on the steep part of the hill Palatinus, which overlooked the forum, and was by them considered as a citadel. But of this Valerius was no sooner informed, than he caused this house to be pulled down, and immediately called an assembly of the people for the election of a consul, in which he left them entirely free. They chose Lucretius; and, being ashamed of having suspected Valerius, they complimented him with a large ground-plot in an agreeable place, where they built him a house. The new consul died a few days after his promotion, so that Valerius was once more left sole governor. In the interval betwixt the death of Lucretius and the choice of another consul, Valerius gave the people so many striking proofs of his attachment to their interest, that they bestowed upon him the surname of *Poplicola* or "popular;" nor was he ever called by another name afterwards.

When Poplicola's year of consulship expired, the Romans thought fit, in consequence of the critical situation of affairs, to elect him a second time, and joined with him T. Lucretius, the brother of the famous Lucretia. They began with restoring the census and lustrum; and found the number of Roman citizens, at or above the age of puberty, to amount to 130,000. As they apprehended an attack from the Latins on account of Tarquin, they were at great pains to fortify Sinquirinum or Singliuria, an important post on that side. Contrary to their expectations, however, the Latins remained quiet; but an haughty embassy was received from Porsena king of Clusium in Hetruria, commanding them either to take back the Tarquins to Rome, or to restore them their estates. To the first of these demands the consuls returned an absolute refusal: and, as to the second, they answered, that it was impracticable; a part of those estates having been consecrated to Mars, and the rest divided among indigent people, from whom they could not be recovered. The imminent danger which now threatened the city, procured Valerius the honour of a third consulship; and with him was joined Horatius Pulvilius, who had enjoyed the dignity for a few months before in the interval betwixt the death of Lucretius and the expiration of the first consulate.

68 Porsena invades the Roman territories.

While the Romans were making the most vigorous preparations for defence, Porsena, attended by his son Arunx and the exiles, marched towards the city at the head of a formidable army, which was quickly joined by a considerable body of Latins under Mamilius, the son-in law of Tarquin. The consuls and the senate took all imaginable care to supply the common people with provisions, lest famine should induce them to open the gates to Tarquin; and they desired the country people to lodge their effects in the fort Janiculum, which overlooked the city, and which was the only fortified place possessed by the Romans on that side the Tiber. Porsena, however, soon drove the Romans out of this fort; upon which the consuls made all their troops pass the river, and drew them up in order of battle to defend the bridge, while Porsena advanced to engage them. The victory was a long time doubtful; but at last the Romans fled. Horatius Cocles, nephew to the consul, with Sp. Lartius and T. Herminius, who had commanded the right-wing, posted themselves at the entrance of the bridge, and for a long time bravely defended it: but at last, the defensive arms of Lartius and Herminius being broken, they retired; and then Horatius desiring them to advise the consuls from him to cut the bridge at the other end, he for a while sustained the attack of the enemy alone. At last, being wounded in the thigh, and the signal given that the bridge was almost broken down, he leaped into the river, and swam across it through a shower of darts. The Romans, in token of gratitude for this eminent service, erected a statue to him in the temple of Vulcan, gave him as much land as he himself with one yoke of oxen could plough in one day; and each of the inhabitants

69 And defeats their army.

70 Bravery of Horatius Cocles.

me. bitants, to the number of 300,000, gave him the value of as much food as each consumed in a day. But notwithstanding all this, as he had lost one eye, and from his wounds continued lame throughout the remainder of his life, these defects prevented his ever being raised to the consulate, or invested with any military command.

The city was not yet fully invested; but as it was very difficult to find provisions for such a multitude, the inhabitants soon began to be in want. Porsena being informed of their difficulties, told them that he would supply them with provisions if they would take back their old masters; but to this they replied, that hunger was a less evil than slavery and oppression. The constancy of the Romans, however, was on the point of failing, when a young patrician, named *Mutius Cordus*, with the consent of the senate and consuls, undertook to assassinate Porsena. He got access to the Hetrurian camp, disguised like a peasant, and made his way to the king's tent. It happened to be the day on which the troops were all reviewed and paid; and Porsena's secretary, magnificently dressed, was sitting on the same tribunal with the king. Mutius, mistaking him for Porsena, instantly leaped upon the tribunal and killed him. He then attempted to make his escape; but being seized and brought back, he owned his design; and with a countenance expressive of desperate rage and disappointment, thrust his hand which had missed the blow into a pan of burning coals which stood by, and there held it for a considerable time. On this, Porsena, changing his resentment into admiration, granted him his life and liberty, and even restored him the dagger with which he intended to have stabbed himself. Mutius took it with his left hand, having lost the use of the other; and from this time had the name of *Scævola*, or "left-handed." He then, in order to induce Porsena to break up the siege, invented a story that 300 young Romans, all of them as resolute as himself, had sworn to take away the life of the king of Hetruria, or to perish in the attempt. This had the desired effect; Porsena sent deputies to Rome, whose only demands were, that the Romans should restore the estates of the Tarquins, or give them an equivalent, and give back the seven small towns which had been formerly taken from the Veientes. The latter of these demands was cheerfully complied with; but the former was still refused, until Porsena should hear the strong reasons they had to urge against it. A truce being agreed on, deputies were sent to the Hetrurian camp to plead the Roman cause against the Tarquins, and with them ten young men, and as many virgins, by way of hostages for performing the other article.

71 Attempt of Mutius Cordus to assassinate Porsena.

The reception which Porsena gave the deputies raised the jealousy of the Tarquins; who still retaining their ancient pride, refused to admit Porsena for a judge between them and the Romans. But the king, without any regard to their opposition, resolved to satisfy himself, by an exact inquiry, whether the protection he had given the Tarquins was just. But while the cause was ready to be opened before the Roman deputies, news were brought that the young women whom the Romans had sent as hostages had ventured to swim across the Tiber, and were returned to Rome. They had gone to bathe in the river, and Clælia happening to turn her eyes towards her native city, that sight raised in her a desire of returning to it. She therefore ventured to swim across the river; and having encouraged her companions to follow her, they all got safe to the opposite shore, and returned to their fathers houses. The return of the hostages gave the consul Poplicola great uneasiness; he was afraid lest this rash action might be imputed to want of fidelity in the Romans. To remove therefore all suspicions, he sent a deputation to the Hetrurian camp, assuring the king that Rome had no share in the foolish attempt of the young women; and promising to send them immediately back to the camp from whence they had fled. Porsena was easily appeased; but the news of the speedy return of the hostages being known in the camp, the Tarquins, without any regard to the truce, or respect to the king their protector, lay in ambush on the road to surprise them. Poplicola having put himself at the head of the Roman troops who escorted them, sustained the attack of the Tarquins, though sudden and unexpected, till his daughter Valeria rode full speed to the Hetrurian camp, and gave notice of the danger her father and companions were in; and then Arunx, the king's son, flying with a great body of cavalry to their relief, put the aggressors to the rout.

72 Adventure of Clælia.

73 Treachery of the Tarquins.

This notorious piece of treachery in the Tarquins gave Porsena strong suspicions of the badness of their cause. He therefore assembled the chief commanders of the Hetrurians; and having heard in their presence the complaints of the Romans, and the justification of their proceedings against the Tarquins, he was so struck with horror at the recital of the crimes the Tarquins were charged with, that he immediately ordered them to leave his camp; declaring, that he renounced his alliance with them, and would no longer continue the hospitality he had shown them. He then commanded the ten young virgins to be brought before him, and inquired who was the first author and chief manager of the enterprise. They all kept silence, till Clælia herself, with an air of intrepidity, confessed, that she alone was guilty, and that she had encouraged the others by her advice. Upon this the king, extolling her resolution above the bravery of Horatius and the intrepidity of Mutius, made her a present of a fine horse, with sumptuous furniture. After this he concluded a peace with the Romans, and restored to them all their hostages; declaring, that their bare word was to him a sufficient security for the performance of the articles.

74 Porsena abandons their cause.

75 Concludes a peace with the Romans, and relieves them.

And now Porsena being about to return to Clusium, gave, before his departure, a further testimony of his respect and friendship for the Romans. He knew that Rome was greatly distressed for want of provisions; but being afraid to offend the inhabitants by relieving them in a direct manner, he ordered his soldiers to leave behind them their tents and provisions, and to carry nothing with them but their arms. As his camp abounded with all sorts of provisions, Rome was hereby much relieved in her wants. The moveables and corn of the Hetrurians were sold by auction to private persons; and on this occasion the Romans took up the custom of making a proclamation by an herald, whenever any effects belonging to the public were to be sold, in the following words, *These are Porsena's goods*. The design of this was to preserve the memory of that prince's kindness. The senate, not satisfied with this, erected a statue of the king near the comitium, and sent an embassy

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embassy to him with a present of a throne adorned with ivory, a sceptre, a crown of gold, and a triumphal robe.

Thus the Romans escaped the greatest danger they had hitherto been in. However, they did not yet enjoy tranquillity. The Sabines revolted, and continued the war for some time with great obstinacy: but being defeated in several engagements, they were at last obliged to submit; and scarce was this war ended, when another began with the Latins, who now declared for king Tarquin. Before they began this war, however, an embassy was sent to Rome, the purport of which was, that the Romans should raise the siege of Fidenæ which had revolted, and receive the Tarquins; who, on their part, should grant a general amnesty. The ambassadors were to allow the Romans a whole year to consider on these overtures; and to threaten them with a war in case they refused to comply with them. The chief view of Tarquin and his partisans in promoting this embassy was, to lay hold of that opportunity to raise a sedition in the city. To the ambassadors, therefore, of the Latins, he joined some of his own emissaries, who, on their arrival in the city, found two sorts of people disposed to enter into their measures; to wit, the slaves, and the meaner citizens.

76 The Latins [illegible] Tarquin.

77 A dangerous conspiracy against the state,

The slaves had formed a conspiracy the year before to seize the Capitol, and set fire to the city in several quarters at the same time. But the plot being discovered, those who were concerned in it had been all crucified, and this execution had highly provoked the whole body of slaves. As to the meaner citizens, who were for the most part overwhelmed with debt, and cruelly used by their creditors, they were well apprised that there could happen no change in the government but to their advantage. These were the conspirators pitched upon, and to them were given the following parts to act: the citizens were to make themselves masters of the ramparts and gates of the city, at an appointed hour of the night; and then to raise a great shout as a signal to the slaves, who had engaged to massacre their masters at the same instant: the gates of the city were then to be opened to the Tarquins, who were to enter Rome while it was yet reeking with the blood of the senators. The conspiracy was ripe for execution, when Tarquin's principal agents, Publius and Marcus, both of his own name and family, being terrified with frightful dreams, had not courage enough to proceed in their design till they had consulted a diviner. However, they did not discover to him the conspiracy; but only asked him in general terms, what success they might expect in a project they had formed? The soothsayer, without the least hesitation, returned the following answer: *Your project will end in your ruin; disburden yourselves of so heavy a load.* Hereupon the Tarquins, fearing lest some of the other conspirators should be beforehand with them in informing, went immediately to S. Sulpitius, the only consul then at Rome, and discovered the whole matter to him. The consul greatly commended them, and detained them in his house, till, by private inquiries, he was assured of the truth of their depositions. Then he assembled the senate, and gave the Latin ambassadors their audience of leave, with an answer to their proposals; which was, that the Romans would neither receive the Tarquins, nor raise the siege of Fidenæ, being all to a man ready to sacrifice their lives in defence of their liberties, and willing to undergo any dangers rather than submit to the government of a tyrant.

78 How discovered.

The ambassadors being dismissed with this answer, and conducted out of the city, Sulpitius laid open to the fathers the dreadful conspiracy. It struck them with horror: but they were all at a loss in what manner they should apprehend and punish the guilty; since, by the law of Poplicola, there was an appeal to the people in all capital cases; and the two witnesses, who were strangers, might be excepted against by Roman citizens. In this perplexity they left the whole conduct of this critical affair to Sulpitius; who took a method which he thought would equally serve to prove the guilt and punish the guilty. He engaged the two informers to assemble the conspirators, and to appoint a rendezvous at midnight in the forum, as if they designed to take the last measures for the execution of the enterprise. In the mean time he used all proper means to secure the city, and ordered the Roman knights to hold themselves ready, in the houses adjoining to the forum, to execute the orders they should receive. The conspirators met at the time and place appointed by the two Tarquins; and the knights, upon a signal agreed on beforehand, invested the forum, and blocked up all the avenues to it so closely, that it was impossible for any of the conspirators to make their escape. As soon as it was light, the two consuls appeared with a strong guard on the tribunal; for Sulpitius had sent to his colleague Manius, who was besieging Fidenæ, desiring him to hasten to the city with a chosen body of troops. The people were convened by curiæ, and acquainted with the conspiracy which had been formed against the common liberty. The accused were allowed to make their defence, if they had any thing to offer against the evidence; but not one of them denying the fact, the consuls repaired to the senate, where sentence of death was pronounced against the conspirators, in case the people approved it.

79 The conspirators punished.

This decree of the senate being read to and approved by the assembly, the people were ordered to retire, and the conspirators were delivered up to the soldiers, who put them all to the sword. The peace of Rome was thought sufficiently secured by this stroke of severity; and therefore, though all the conspirators were not punished with death, it was judged proper not to make any further inquiries. The two informers were rewarded with all the privileges of Roman citizens, 100,000 ases, and 20 acres of land. Three festival-days were appointed for expiations, sacrifices, and public games, by way of thanksgiving to the gods. But the general joy was disturbed by a melancholy accident: as the people were conducting Manius Tullius the consul from the circus to his house, he fell from his chariot, and died three days after.

The city of Fidenæ was not yet reduced: it held out during the following consulship of T. Æbutius and P. Veturius; but was taken the next year by T. Lartius, who, together with Q. Clælius, was raised to the consular dignity. The Latins, enraged at the loss of this town, began to complain of their leading men; which opportunity Tarquin and Mamilius improved so far, as to make all the Latin cities, 24 in number, enter into an alliance against Rome, and to bind themselves by oath never to violate their engagements. The Latins

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tins made vaſt preparations, as did likewiſe the Romans; but the latter could procure no aſſiſtance from their neighbours. As the Latin nation was much ſuperior to them in ſtrength, they ſent deputies to ſolicit ſuccours from the ſeveral ſtates with which they were ſurrounded: but their negociations proved every where unſucceſsful; and, what was worſe than all, the republic had rebellious ſons in her own boſom, who refuſed to lend their aid in defence of their country. The poorer ſort of people, and the debtors, refuſed to take the military oaths, or to ſerve; alleging their poverty, and the fruitleſs hazards they ran in fighting for the defence of a city, where they were oppreſſed and enſlaved by their creditors. This ſpirit of mutiny ſpread among the inferior claſſes, moſt of them refuſing to liſt themſelves, unleſs their debts were all remitted by a decree of the ſenate; nay, they began to talk of leaving the city, and ſettling elſewhere.

80 Suburbans at Rome.

The ſenate, apprehending a general inſurrection, aſſembled to deliberate on the means of quieting thoſe domeſtic troubles. Some were for a free remiſſion of all debts, as the ſafeſt expedient at that juncture; others urged the dangerous conſequences of ſuch a condeſcenſion, adviſing them to liſt ſuch only as were willing to ſerve, not doubting but thoſe who refuſed their aſſiſtance would offer it of their own accord when it was no longer deſired. Several other expedients were propoſed: but at length this prevailed; to wit, that all actions for debts ſhould be ſuſpended till the concluſion of the war with the Latins. But this the indigent debtors thought only a ſuſpenſion of their miſery; and therefore it had not the intended effect on the minds of the unruly multitude. The ſenate might indeed have proſecuted the ringleaders of the ſedition; but the law of Poplicola, called the *Valerian law*, which allowed appeals to the aſſembly of the people, was a protection for the ſeditious, who were ſure of being acquitted by the accomplices of their rebellion. The ſenate, therefore, to elude the effect of a privilege that put ſuch a reſtraint upon their power, reſolved to create one ſupreme magiſtrate, who, with the title of *dictator*, ſhould have an abſolute power for a time: but as this could not be done without ſtriking at the law of Poplicola, and transferring the power of the people in criminal caſes to a magiſtrate ſuperior to all laws, it was neceſſary to uſe artifice, in order to obtain the conſent of the curiæ. They therefore repreſented to them in a public aſſembly, that, in ſo difficult a conjuncture, when they had their domeſtic quarrels to decide, and at the ſame time a powerful enemy to repulſe, it would be expedient to put the commonwealth under a ſingle governor, who, ſuperior to the conſuls themſelves, ſhould be the arbiter of the laws, and as it were the father of his country; that his power ſhould have no limits: but, however, leſt he ſhould abuſe it, they ought not to truſt him with it above ſix months.

81 A dictator elected.

The people, not foreſeeing the conſequences of this change, agreed to it; but the greateſt difficulty was to find a man duly qualified in all reſpects for ſo great a truſt. T. Lartius, one of the conſuls, ſeemed to be of all men the moſt unexceptionable; but the ſenate, fearing to offend his colleague by an invidious preference, gave the conſuls the power of chooſing a dictator, and obliged them to name one of themſelves, not doubting but Clœlius would yield to the ſuperior talents of his colleague; nor were they diſappointed in their expectations. But Lartius, with the ſame readineſs, named Clœlius; and the only conteſt was, which of the two ſhould raiſe the other to the ſupreme authority. Each perſiſted obſtinately in remitting the dignity to his colleague, till Clœlius, ſtarting up on a ſudden, abdicated the conſulſhip, and, after the manner of an interrex, proclaimed Titus Lartius dictator, who thereupon was obliged to take upon him the government of the republic.

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82 He chooſes a general of horſe.

Lartius indeed took as much ſtate upon him, after he had entered upon his office, as he had ſhown modeſty in refuſing it. He began by creating, without the participation either of the ſenate or people, a general of the Roman horſe; an office which laſted only during the dictatorſhip, and which all ſubſequent dictators revived immediately after their election. Sp. Caſſius, formerly conſul, and honoured with a triumph, was the perſon he advanced to this ſecond ſtation in the republic. Lartius, having by this means ſecured the Roman knights, reſolved, in the next place, to make the people reſpect and fear him. With this view he never appeared in public, without being attended by 24 lictors, to whoſe faſces he again added the axes which Poplicola had cauſed to be taken from them. The novelty of this ſight was alone ſufficient to awe the ſeditious, and, without executions, to ſpread conſternation throughout Rome. The murmurs of the inferior claſſes being by this means ſilenced, the dictator commanded a cenſus to be taken, according to the inſtitution of King Servius. Every one, without exception, brought in his name, age, the particulars of his eſtate, &c. and there appeared to be in Rome 150,700 men who were paſt the age of puberty. Out of theſe the dictator formed four armies: the firſt he commanded himſelf; the ſecond he gave to Clœlius his late colleague; the third to Sp. Caſſius his general of the horſe; and the fourth he left in Rome, under the command of his brother Sp. Lartius, who was to guard the city. The Latins not being ſo forward in their preparations as was expected, all their hoſtilities againſt Rome this campaign amounted to no more than the ſending a detachment into the Roman territory to lay it waſte. The dictator gained ſome advantage over that party; and the great humanity with which he treated the priſoners and wounded, diſpoſed the Latins to liſten the more readily to the overtures which he at the ſame time made them for a ſuſpenſion of hoſtilities. At length a truce was agreed on for a year; and then Lartius, ſeeing the republic reſtored to its former tranquillity, reſigned the dictatorſhip, though the time appointed for its duration was not yet expired.

83 Number of the Romans.

The following conſulſhip of Sempronius Atratinus and Minutius Angurinus, produced nothing memorable. But the next year the truce expired, when Aulus Poſthumius and T. Virginius took poſſeſſion of the conſulſhip. Both Romans and Latins were buſied in making the neceſſary preparations for war. The nobility of Latium, who were for the moſt part in the intereſt of the Tarquins, having found means to exclude the citizens from the Latin diets, carried all before them in thoſe aſſemblies: whereupon many of the citizens removed with their families to Rome, where they were well received. The Latins being bent upon war, the ſenate, notwithſtanding the perfect harmony

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mony that reigned between them and the people, thought it expedient to create a dictator. The two consuls were therefore impowered to name one of themselves to that dignity; whereupon Virginius readily yielded it to his colleague Posthumius, as the more able commander. The new dictator, having created Æbutius Elva his general of the horse, and divided his army into four bodies, left one of them, under the command of Sempronius, to guard the city; and with the other three, commanded by himself, Virginius, and Æbutius, marched out against the Latins, who, with an army of 42,000 foot and 3000 horse, under the command of Sextus Tarquinius, Titus Tarquinius, and Mamilius, had already made themselves masters of Corbio, a strong-hold belonging to the republic, and put the garrison to the sword. Posthumius encamped in the night on a steep hill near the lake Regillus, and Virginius on another hill over-against him. Æbutius was ordered to march silently in the night, with the cavalry and light-armed infantry, to take possession of a third hill upon the road, by which provisions must be brought to the Latins.

84 Battle of Regillus.

Before Æbutius had fortified his new camp, he was vigorously attacked by Lucius Tarquinius, whom he repulsed three times with great loss, the dictator having sent him a timely reinforcement. After this, Æbutius intercepted two couriers sent by the Volsci to the Latin generals, and, by letters found upon them, discovered, that a considerable army of the Volsci and Hernici were to join the Latin forces in three days. Upon this intelligence, Posthumius drew his three bodies of troops together, which amounted in all to no more than 24,000 foot and 1000 horse, with a design to engage the enemy before the arrival of the succours they expected. Accordingly he encouraged his men, and, with his army in battle-array, advanced to the place where the enemy was encamped. The Latins, who were much superior to the Romans in numbers, and besides began to want provisions, did not decline the engagement. Titus Tarquinius, at the head of the Roman exiles and deserters, was in the centre, Mamilius in the right wing, and Sextus Tarquinius in the left. In the Roman army the dictator commanded in the centre, Æbutius in the left wing, and Virginius in the right.

The first body which advanced was that of the dictator; and, as soon as it began to march, T. Tarquinius, singling out the dictator, ran full speed against him. The dictator did not decline the encounter, but, flying at his adversary, wounded him with a javelin in the right side. Upon this, the first line of the Latins advanced to cover their general; but he being carried out of the field, they made but a faint resistance when charged by the troops of the dictator. They were destitute of a leader; and therefore began to retire, when Sextus Tarquinius, taking the place of his brother, brought them back to the charge, and renewed the fight with such vigour, that the victory in the centre was still doubtful. On the side of Mamilius and Æbutius, both parties, encouraged by the example of their leaders, fought with incredible bravery and resolution. After a long and bloody contest, the two generals agreed to determine the doubtful victory by a single combat. Accordingly the champions pushed on their horses against each other. Æbutius with his lance wounded Mamilius in the breast; and Mamilius with his sword Æbutius in the right arm. Neither of the wounds were mortal; but, both generals falling from their horses, put an end to the combat. Marcus Valerius, the brother of Poplicola, supplying the place of Æbutius, endeavoured, at the head of the Roman horse, to break the enemy's battalions; but was repulsed by the cavalry of the Roman royalists. At the same time Mamilius appeared again in the van, with a considerable body of horse and light-armed infantry. Valerius, with the assistance of his two nephews, the sons of Poplicola, and a chosen troop of volunteers, attempted to break through the Latin battalions, in order to engage Mamilius; but, being surrounded by the Roman exiles, he received a mortal wound in his side, fell from his horse, and died. The dead body was carried off by the two sons of Poplicola, in spite of the utmost efforts of the exiles, and delivered to Valerius's servants, who conveyed it to the Roman camp; but the young heroes being afterwards invested on all sides, and overpowered by numbers, were both killed on the spot. Upon their death, the left wing of the Romans began to give ground, but were soon brought back by Posthumius; who, with a body of Roman knights, flying to their assistance, charged the royalists with such fury, that they were, after an obstinate resistance, obliged to give way, and retire in the utmost confusion. In the mean time Titus Horminius, one of the dictator's lieutenants, having rallied those who had fled, fell upon some close battalions of the enemy's right wing, which still kept their ground under the command of Mamilius, killed him with his own hand, and put that body to flight. But while he was busy in stripping the body of his enemy, he received himself a wound, of which he died soon after.

Sextus Tarquinius in the mean time maintained the fight with great bravery, at the head of the left wing, against the consul Virginius; and had even broke thro' the right wing of the Roman army, when the dictator attacked him unexpectedly with his victorious squadrons. Then Sextus, having lost at once all hopes of victory, threw himself, like one in despair, into the midst of the Roman knights, and there sunk under a multitude of wounds, after he had distinguished himself in a most eminent manner. The death of the three generals was followed by the entire defeat of the Latin army. Their camp was taken and plundered, and most of their troops cut in pieces; for, of the 43,000 men who came into the field, scarce 10,000 returned home. The next morning the Volsci and Hernici came, according to their agreement, to assist the Latins; but finding, upon their arrival, how matters had gone, some of them were for falling upon the Romans before they could recover from the fatigue of the preceding day; but others thought it more safe to send ambassadors to the dictator, to congratulate him on his victory, and assure him that they had left their own country with no other design than to assist Rome in so dangerous a war. Posthumius, by producing their couriers and letters, gave them to understand that he was well apprised of their designs and treacherous proceedings. However, out of a regard to the law of nations, he sent them back unhurt, with a challenge to their generals to fight the next day; but the Volsci, and their confederates, not caring to engage a victorious army, decamped

85 The Latins entirely defeated, and their camp taken.

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86 The whole nation submits.

camped in the night, and returned to their respective countries before break of day.

The Latins having now no remedy but an entire submission, sent ambassadors to solicit a peace at Rome, yielding themselves absolutely to the judgment of the senate. As Rome had long since made it a maxim to spare the nations that submitted, the motion of Titus Lartius, the late dictator, prevailed; and the ancient treaties with the Latins were renewed, on condition, however, that they should restore the prisoners they had taken, deliver up the deserters, and drive the Roman exiles out of Latium. Thus ended the last war which the Romans waged with their neighbours on account of their banished king; who, being now abandoned by the Latins, Hetrurians, and Sabines, retired into Campania, to Aristodemus tyrant of Cumæ, and there died, in the 90th year of his age and 14th of his exile.

87 Tarquin dies.

The Romans were no sooner freed from these dangerous wars, than they began to oppress one another; and those domestic feuds took place which continued more or less during the whole time of the republic.

88 New disturbances at Rome.

The first disturbances were occasioned by the oppression of the plebeians who were debtors to the patricians. The senate, who were at the head of the patricians, chose to the consulate one Appius Claudius, who violently opposed the pretensions of the plebeians; but gave him for his colleague one P. Servilius, who was of a quite contrary opinion and disposition. The consequence of this was, that the consuls disagreed; the senate did not know what to determine, and the people were ready to revolt. In the midst of these disturbances, an army of the Volsci advanced towards Rome; the people refused to serve; and had not Servilius procured some troops who served out of a personal affection to himself, the city would have been in great danger.

But though the Volsci were for this time driven back, they had no intention of dropping their designs; they engaged in an alliance with them the Hernici and Sabines. In the mean time, the disputes at Rome continued with as much violence as ever. Nay, though they were expressly told that the Volscian army was on its way to besiege the city, the plebeians absolutely refused to march against them; saying, that it was the same thing whether they were chained by their own countrymen or by the enemy. In this extremity Servilius promised, that when the enemy were repulsed the senate would remit all the debts of the plebeians. This having engaged them to serve, the consul marched out at their head, defeated the enemy in a pitched battle, and took their capital, giving it up to be plundered by his soldiers, without reserving any part for the public treasury.

Whatever might have been the reasons of Servilius for this step, it furnished Appius with a pretence for refusing him a triumph, as a man of a seditious disposition, who aimed at popularity by an excessive indulgence and profuseness to his soldiers. Servilius, incensed at this injustice, and encouraged by the acclamations of the people, decreed himself a triumph in spite of Appius and the senate. After this he marched against the Aurunci, who had entered Latium; and, in conjunction with Posthumius Regillens, he utterly defeated them, and obliged them to retire into their own country. But neither the services of the general nor his soldiers could mollify the senate and patrician party. Appius even doubled the severity of his judgments, and imprisoned all those who had been set at liberty during the war. The prisoners cried for relief to Servilius; but he could not obtain the accomplishment of those promises which the senate never had meant to perform; neither did he choose to quarrel openly with the whole patrician body; so that, striving to preserve the friendship of both parties, he incurred the hatred of the one and the contempt of the other. Perceiving therefore that he had lost all his interest with the plebeians, he joined with the patricians against them; but the plebeians rushing tumultuously into the forum, made such a noise, that no sentence pronounced by the judges could be heard, and the utmost confusion prevailed through the whole city. Several proposals were made to accommodate matters; but through the obstinacy of Appius and the majority of the senators, they all came to nothing. In the mean time it was necessary to raise an army against the Sabines, who had invaded the territories of the republic; but the people refused to serve. Manius Valerius, however, brother to the celebrated Poplicola, once more prevailed upon them to march out against the common enemy; having previously obtained assurances from the senate that their grievances should be redressed. But no sooner had victory declared in favour of the Romans, than the senate, apprehending that the soldiers at their return would challenge Valerius, who had been nominated dictator, for the performance of their promises, desired him and the two consuls to detain them still in the field, under pretence that the war was not quite finished. The consuls obeyed; but the dictator, whose authority did not depend on the senate, disbanded his army, and declared his soldiers free from the oath which they had taken; and as a further proof of his attachment to the plebeians, he chose out of that order 400, whom he invested with the dignity of knights. After this he claimed the accomplishment of the promises made by the senate: but instead of performing them, he had the mortification to hear himself loaded with reproaches; on which he resigned his office as dictator, and acquainted the people with his inability to fulfil his engagements to them. No sooner were these transactions known in the army, than the soldiers, to a man, deserted the consuls and other officers, and retired to a hill called afterwards *Mons Sacer*, three miles from Rome, where they continued to observe an exact discipline, offering no sort of violence whatever. The senate, after taking proper measures for the defence of the city, sent a deputation to the malecontents; but it was answered with contempt. In short, all things tended to a civil war, when at last matters were compromised by the institution of tribunes of the people, who had power to prevent the passing of any law that might be prejudicial to the people, and whose persons were declared sacred, insomuch that whoever offered the least violence to the person of a tribune was declared accursed, his effects were to be consecrated to Ceres, and he himself might be killed with impunity; and all the Romans were to engage themselves, in their own name and that of their posterity, never to repeal this law. The people, after these regulations, erected an altar to Jupiter the Terrible, on the top of the hill where their camp had stood; and when they had offered

89 The soldiers revolt, but all the troubles are ended by creating tribunes of the people.

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ed sacrifices to the god, and consecrated the place of their retreat, they returned to Rome, led by their new magistrates and the deputies of the senate.

Thus the Roman constitution, which had originally been monarchic, and from thence had passed into an aristocracy, began now to verge towards a democracy. The tribunes immediately after their election obtained permission from the senate to elect two persons as their assistants or assistants, who should ease them a little in the great multiplicity of their affairs. These were called *plebeian ædiles*; and afterwards came to have the inspection of the public baths, aqueducts, with many other offices originally belonging to the consuls, after which they were called simply *ædiles*.

All opposition to the making of regular levies being now at an end, the consul Cominius led an army against the Volsci. He defeated them in battle, and took from them Longula and Polusca; after which he besieged Corioli, a city strongly fortified, and which might be called their capital. He carried this place, and gained a victory over the Antiates, the same day; but Caius Marcius, an eminent patrician, had all the glory of both actions. The troops detached by the consul to scale the walls of Corioli being repulsed in their first assault, Marcius rallied the runaways, led them on afresh to the charge, drove back the enemy within their walls, and, entering the city with them, made himself master of it. This exploit atchieved, he with all expedition put himself in the foremost ranks of the consul's main army, that was just going to engage with the Antiates, who were come to the relief of the place; and there he behaved with equal bravery, and had equal success.

90 Bravery of Caius Marcius Coriolanus.

The next day the consul, having erected his tribunal before his tent, called the soldiers together. His whole speech to them was little more than a panegyric upon Marcius. He put a crown upon his head; assigned him a tenth part of all the spoil; and, in the name of the republic, made him a present of a fine horse with stately furniture, giving him leave at the same time to choose out any ten of the prisoners for himself; and lastly, he allotted him as much money as he could carry away. Of all these offers Marcius accepted only the horse, and one captive of the ten, an old friend of his family, that he might give him his liberty. To add to the glory of the brave warrior, the consul bestowed on him the surname of *Coriolanus*, transferring thereby from himself to Marcius all the honour of the conquest of Corioli. Cominius, at his return to Rome, disbanded his army; and war was succeeded by works of religion, public games, and treaties of peace. A census and a lustrum closed the events of this memorable consulship. There appeared to be in Rome at this time no more than 110,000 men fit to bear arms; a number by many thousands less than at the last enrollment. Doubtless great numbers had run away to avoid being slaves to their creditors.

91 Diminution of the power of the Romans.

Under the following administration of T. Geganius and P. Minucius, Rome was terribly afflicted by a famine, occasioned chiefly by the neglect of ploughing and sowing during the late troubles; for the sedition had happened after the autumnal equinox, about sowing-time, and the accommodation was not made till just before the winter solstice. The senate dispatched agents into Hetruria, Campania, the country of the Volsci, and even into Sicily, to buy corn. Those who embarked for Sicily met with a tempest which retarded their arrival at Syracuse; where they were constrained to pass the winter. At Cumæ, the tyrant Aristodemus seized the money brought by the commissaries; and they themselves with difficulty saved their lives by flight. The Volsci, far from being disposed to succour the Romans, would have marched against them, if a sudden and most destructive pestilence had not defeated their purpose. In Hetruria alone the Roman commissaries met with success. They sent a considerable quantity of grain from thence to Rome in barks: but this was in a short time consumed, and the misery became excessive: the people were reduced to eat any thing they could get; and nature in so great extremity loathed nothing.

92 A famine in the city.

93 A colony sent to Velitræ.

During this distress a deputation came from Velitræ a Volscian city, where the Romans had formerly planted a colony, representing that nine parts in ten of its inhabitants had been swept away by a plague, and praying the Romans to send a new colony to re-people it. The conscript fathers without much hesitation granted the request, pressed the departure of the colony, and without delay named three leaders to conduct it.

The people at first were very well pleased with the proposal, as it gave them a prospect of relief in their hunger: but when they reflected on the terrible havoc the plague had made among the old inhabitants of Velitræ, they began to fear that the place might be still infected; and this apprehension became so universal, that not one of them would consent to go thither. Nevertheless the senate at length published a decree that all the citizens should draw lots; and that those to whose lot it fell to be of the colony should instantly march for Velitræ, or suffer the severest punishments for their disobedience: fear and hunger made the people comply; and the fathers, a few days after, sent away a second colony to Norba, a considerable city of Latium. But the patricians were disappointed as to the benefit they expected from these measures. The plebeians who remained in Rome being more and more pressed by hunger and want, grew daily more angry with the senate. At first they assembled in small companies to vent their wrath in abusive complaints; and at length, in one great body, rushed all together into the forum, calling out upon their tribunes for succour.

94 Disturbances raised by the tribunes.

The tribunes made it their business to heighten the general discontent. Having convened the people, Spurius Icilius, chief of the college of tribunes, inveighed most bitterly against the senate; and when he had ended his harangue, exhorted others to speak freely their thoughts; particularly, and by name, calling upon Brutus and Sicinius, the ringleaders of the former sedition, and now ædiles. These men, far from attempting to extinguish the fire, added fresh fuel to it: And the more to inflame the spirits of the multitude, they enumerated all the past insults which the people had suffered from the nobles. Brutus concluded his harangue with loudly threatening, that if the plebeians would follow his advice, he would soon oblige those men who had caused the present calamity to find a remedy for it; after which the assembly was dismissed.

The next day, the consuls, greatly alarmed at this commotion, and apprehending from the menaces of Brutus some very mischievous event, thought it advisable

ſable to convene the ſenators, that they might conſider of the beſt means to avert the impending evil. The fathers could not agree in opinion. Some were for employing ſoft words and fair promiſes to quiet and gain over the moſt turbulent. But Appius's advice prevailed: which was, that the conſuls ſhould call the people together, aſſure them that the patricians had not brought upon them the miſeries they ſuffered, and promiſe, on the part of the ſenate, all poſſible care to provide for their neceſſities; but at the ſame time ſhould reprove the diſturbers of the public peace, and threaten them with the ſevereſt puniſhments if they did not amend their behaviour.

When the conſuls, towards the cloſe of the day, having aſſembled the people, would have ſignified to them the diſpoſition and intention of the ſenate, they were interrupted by the tribunes. A diſpute enſued, in which no order or decency was obſerved on either ſide. Several ſpeaking at the ſame time, and with great vociferation, no one could be well underſtood by the audience. The conſuls judged, that being the ſuperior magiſtrates, their authority extended to all aſſemblies of the citizens. On the other ſide, it was pretended, that the aſſemblies of the people were the province of the tribunes, as the ſenate was that of the conſuls.

The diſpute grew warm, and both parties were ready to come to blows; when Brutus having put ſome queſtions to the conſuls, ended it for that time. Next day he propoſed a law which was carried, that no perſon whatever ſhould interrupt a tribune when ſpeaking in an aſſembly of the people; by which means the influence and power of the popular party was conſiderably increaſed, and the tribunes became formidable opponents to the conſuls and patricians. An opportunity ſoon offered for both parties to try their ſtrength. A great fleet of ſhips laden with corn from Sicily, a great part of which was a preſent from Gelon the king of that country to the Romans, and the reſt purchaſed by the ſenate with the public money, raiſed their ſpirits once more.

But Coriolanus incurred their reſentment, by inſiſting that it ſhould not be diſtributed till the grievances of the ſenate were removed. For this, the tribunes ſummoned him to a trial before the people, under pretence that he aſpired at the ſovereignty.

When the appointed day was come, all perſons were filled with the greateſt expectations, and a vaſt concourſe from the adjacent country aſſembled and filled up the forum. Coriolanus, upon this, preſented himſelf before the people with a degree of intrepidity that merited better fortune. His graceful perſon, his perſuaſive eloquence, the cries of thoſe whom he had ſaved from the enemy, inclined the auditors to relent. But being confounded with a new charge which he did not expect, of having embezzled the plunder of Antium, the tribunes immediately took the votes, and Coriolanus was condemned to perpetual exile.

This ſentence againſt their braveſt defender ſtruck the whole body of the ſenate with ſorrow, conſternation, and regret. Coriolanus alone, in the midſt of the tumult, ſeemed an unconcerned ſpectator. He returned home, followed by the lamentations of hundreds of the moſt reſpectable ſenators and citizens of Rome, to take a laſting leave of his wife, his children, and his mother Veturia. Thus recommending his little children to their care, he left the city, without followers or fortune, to take refuge with Tullus Attius, a man of great power among the Volſcians, who took him under his protection, and eſpouſed his quarrel.

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97 He leaves the city, and joins the Volſci.

The firſt thing to be done, was to induce the Volſci to break the league which had been made with Rome; and for this purpoſe Tullus ſent many of his citizens thither, in order to ſee ſome games at that time celebrating; but at the ſame time gave the ſenate private information, that the ſtrangers had dangerous intentions of burning the city. This had the deſired effect; the ſenate iſſued an order that all ſtrangers, whoever they were, ſhould depart from Rome before ſunſet. This order Tullus repreſented to his countrymen as an infraction of the treaty, and procured an embaſſy to Rome, complaining of the breach, and demanding back all the territories belonging to the Volſcians, of which they had been violently diſpoſſeſſed; declaring war in caſe of a refuſal: but this meſſage was treated by the ſenate with contempt.

98 Gains great advantages over the Romans.

War being thus declared on both ſides, Coriolanus and Tullus were made generals of the Volſcians; and accordingly invaded the Roman territories, ravaging and laying waſte all ſuch lands as belonged to the plebeians, but letting thoſe of the ſenators remain untouched. In the mean time, the levies went on very ſlowly at Rome; the two conſuls, who were re-elected by the people, ſeemed but little ſkilled in war, and even feared to encounter a general whom they knew to be their ſuperior in the field. The allies alſo ſhowed their fears, and ſlowly brought in their ſuccours; ſo that Coriolanus continued to take their towns one after the other. Fortune followed him in every expedition; and he was now ſo famous for his victories, that the Volſci left their towns defenceleſs to follow him into the field. The very ſoldiers of his colleague's army came over to him, and would acknowledge no other general. Thus finding himſelf unoppoſed in the field, and at the head of a numerous army, he at length inveſted the city of Rome itſelf, fully reſolved to beſiege it. It was then that the ſenate and the people unanimouſly agreed to ſend deputies to him, with propoſals of reſtoration, in caſe he ſhould draw off his army. Coriolanus received their propoſals at the head of his principal officers, and, with the ſternneſs of a general that was to give the law, refuſed their offers.

99 Inveſts the city.

Another embaſſy was now ſent forth, conjuring him not to exact from his native city aught but what became Romans to grant. Coriolanus, however, ſtill perſiſted in his former demands, and granted them but three days in which to finiſh their deliberations. In this exigence, all that was left was another deputation ſtill more ſolemn than either of the former, compoſed of the pontiffs, the prieſts, and the augurs. Theſe, cloathed in their habits of ceremony, and with a grave and mournful deportment, iſſued from the city, and entered the camp of the conqueror: but all in vain, they found him ſevere and inflexible as before.

When the people ſaw them return ineffectually, they began to give up the commonwealth as loſt. Their temples were filled with old men, with women and children, who, proſtrate at their altars, put up their ardent prayers for the preſervation of their country. Nothing was to be heard but anguiſh and lamentation, nothing to be ſeen but ſcenes of affright and diſtreſs. At length

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it was suggested to them, that what could not be effected by the intercession of the senate or the adjuration of the priests, might be brought about by the tears of his wife, or the commands of his mother. This deputation seemed to be relished by all; and even the senate itself gave it the sanction of their authority. Veturia, the mother of Coriolanus, at first made some hesitation to undertake so pious a work: however, she at last undertook the embassy, and set forward from the city, accompanied by many of the principal matrons of Rome, with Volumnia his wife, and his two children. Coriolanus, who at a distance discovered this mournful train of females, was resolved to give them a denial, and called his officers round him to be witness of his resolution; but, when told that his mother and his wife were among the number, he instantly came down from his tribunal to meet and embrace them. At first, the womens tears and embraces took away the power of words; and the rough soldier himself, hard as he was, could not refrain from sharing in their distress. Coriolanus now seemed much agitated by contending passions; while his mother, who saw him moved, seconded her words by the most persuasive eloquence, her tears: his wife and children hung round him, intreating for protection and pity; while the fair train, her companions, added their lamentations, and deplored their own and their country's distress. Coriolanus for a moment was silent, feeling the strong conflict between honour and inclination: at length, as if rouzed from his dream, he flew to take up his mother, who had fallen at his feet, crying out, "O my mother, thou hast saved Rome, but lost thy son." He accordingly gave orders to draw off the army, pretending to the officers that the city was too strong to be taken. Tullus, who had long envied his glory, was not remiss in aggravating the lenity of his conduct to his countrymen. Upon their return, Coriolanus was slain in an insurrection of the people, and afterwards honourably buried, with late and ineffectual repentance.

100 But abandons the enterprize at the intercession of his mother.

101 Is assassinated by the Volsci.

The year following, the two consuls of the former year, Manlius and Fabius, were cited by the tribunes to appear before the people. The Agrarian law, which had been proposed some time before, for equally dividing the lands of the commonwealth among the people, was the object invariably pursued, and they were accused of having made unjustifiable delays in putting it off.

102 New disturbances.

It seems the Agrarian law was a grant the senate could not think of giving up to the people. The consuls, therefore, made many delays and excuses, till at length they were once more obliged to have recourse to a dictator; and they fixed upon Quintus Cincinnatus, a man who had for some time given up all views of ambition, and retired to his little farm, where the deputies of the senate found him holding the plough, and dressed in the mean attire of a labouring husbandman. He appeared but little elevated with the addresses of ceremony and the pompous habits they brought him; and, upon declaring to him the senate's pleasure, he testified rather a concern that his aid should be wanted. However, he departed for the city, where both parties were strongly enflamed against each other: but he was resolved to side with neither; only, by a strict attention to the interests of his country, instead of gaining the confidence of faction, to obtain the esteem of all. Thus, by threats and well-timed submission, he prevailed upon the tribunes to put off their law for a time, and carried himself so as to be a terror to the multitude whenever they refused to enlist; and their greatest encourager whenever their submission deserved it. Thus, having restored that tranquillity to the people which he so much loved himself, he again gave up the splendors of ambition, to enjoy it with a greater relish in his little farm.

Ro

1 Quel. Cinci

Cincinnatus was not long retired from his office when a fresh exigence of the state once more required his assistance. The Æqui and the Volsci, who, though still worsted, still were for renewing the war, made new inroads into the territories of Rome. Minutius, one of the consuls who succeeded Cincinnatus, was sent to oppose them; but being naturally timid, and rather more afraid of being conquered than desirous of victory, his army was driven into a defile between two mountains, from which, except through the enemy, there was no egress. This, however, the Æqui had the precaution to fortify; by which the Roman army was so hemmed in on every side, that nothing remained but submission to the enemy, famine, or immediate death. Some knights, who found means of getting away privately through the enemy's camp, were the first that brought the account of this disaster to Rome. Nothing could exceed the consternation of all ranks of people when informed of it. The senate at first thought of the other consul; but not having sufficient experience of his abilities, they unanimously turned their eyes upon Cincinnatus, and resolved to make him dictator. Cincinnatus, the only person on whom Rome could now place her whole dependence, was found, as before, by the messengers of the senate, labouring in his little field with cheerful industry. He was at first astonished at the ensigns of unbounded power with which the deputies came to invest him; but still more at the approach of the principal of the senate, who came out to meet him. A dignity so unlooked for, however, had no effect upon the simplicity or the integrity of his manners: and being now possessed of absolute power, and called upon to nominate his master of the horse, he chose a poor man named *Tarquitius*, one who, like himself, despised riches when they led to dishonour. Upon entering the city, the dictator put on a serene look, and intreated all those who were able to bear arms to repair before sun-set to the Campus Martius (the place where the levies were made) with necessary arms, and provisions for five days. He put himself at the head of these; and, marching all night with great expedition, he arrived before day within sight of the enemy. Upon his approach, he ordered his soldiers to raise a loud shout, to apprize the consul's army of the relief that was at hand. The Æqui were not a little amazed when they saw themselves between two enemies; but still more when they perceived Cincinnatus making the strongest entrenchments beyond them, to prevent their escape, and inclosing them as they had inclosed the consul. To prevent this, a furious combat ensued; but the Æqui, being attacked on both sides, and unable to resist or fly, begged a cessation of arms. They offered the dictator his own terms: he gave them their lives; but obliged them, in token of servitude, to pass under the yoke, which was two spears set upright, and another across, in the form of a gallows, beneath which the

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the vanquished were to march. Their captains and generals he made prisoners of war, being reserved to adorn his triumph. As for the plunder of the enemy's camp, that he gave entirely up to his own soldiers, without reserving any part for himself, or permitting those of the delivered army to have a share. Thus, having rescued a Roman army from inevitable destruction, having defeated a powerful enemy, having taken and fortified their city, and, still more, having refused any part of the spoil, he resigned his dictatorship, after having enjoyed it but 14 days. The senate would have enriched him; but he declined their proffers, choosing to retire once more to his farm and his cottage, content with temperance and fame.

But this repose from foreign invasion did not lessen the tumults of the city within. The clamours for the Agrarian law still continued, and still more fiercely, when Sicinius Dentatus, a plebeian, advanced in years, but of an admirable person and military deportment, came forward, to enumerate his hardships and his merits. This old soldier made no scruple of extolling the various merits of his youth; but indeed his atchievements supported ostentation. He had served his country in the wars 40 years; he had been an officer 30, first a centurion, and then a tribune: he had fought 120 battles, in which, by the force of his single arm, he had saved a multitude of lives: he had gained 14 civic, three mural, and eight golden crowns, besides 83 chains, 60 bracelets, 18 gilt spears, and 23 horse-trappings, whereof nine were for killing the enemy in single combat: moreover, he had received 45 wounds, all before, and none behind. These were his honours: yet, notwithstanding all this, he had never received any share of those lands which were won from the enemy, but continued to drag on a life of poverty and contempt; while others were possessed of those very territories which his valour had won, without any merit to deserve them, or ever having contributed to the conquest. A case of so much hardship had a strong effect upon the multitude; they unanimously demanded that the law might be passed, and that such merit should not go unrewarded. It was in vain that some of the senators rose up to speak against it; their voices were drowned by the cries of the people. When reason, therefore, could no longer be heard, passion, as usual, succeeded; and the young patricians, running furiously into the throng, broke the balloting urns, and dispersed the multitude that offered to oppose them. For this they were some time after fined by the tribunes; but their resolution, nevertheless, for the present, put off the Agrarian law.

The commonwealth of Rome had now for near 60 years been fluctuating between the contending orders that composed it, till at length, each side, as if weary, were willing to respire a while from the mutual exertions of their claims. The citizens, now, therefore, of every rank, began to complain of the arbitrary decisions of their magistrates, and wished to be guided by a written body of laws, which being known might prevent wrongs as well as punish them. In this both the senate and the people concurred, as hoping that such laws would put an end to the commotions that so long had harassed the state. It was thereupon agreed, that ambassadors should be sent to the Greek cities in Italy, and to Athens, to bring home such laws from thence as by experience had been found most equitable and useful. For this purpose, three senators, Posthumius, Sulpicius, and Manlius, were fixed upon, and galleys assigned to convoy them, agreeable to the majesty of the Roman people. While they were upon this commission abroad, a dreadful plague depopulated the city at home, and supplied the interval of their absence with other anxiety than that of wishes for their return. In about a year the plague ceased, and the ambassadors returned, bringing home a body of laws, collected from the most civilized states of Greece and Italy, which being afterwards formed into ten tables, and two more being added, made that celebrated code called the *Laws of the Twelve Tables*, many fragments of which remain to this day.

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108 Decemviri elected.

The ambassadors were no sooner returned, than the tribunes required that a body of men should be chosen to digest their new laws into proper form, and to give weight to the execution of them. After long debates whether this choice should not be partly made from the people as well as the patricians, it was at last agreed that 10 of the principal senators should be elected, whose power, continuing for a year, should be equal to that of kings and consuls, and that without any appeal. The persons chosen were Appius and Genutius, who had been elected consuls for the ensuing year; Posthumius, Sulpicius, and Manlius, the three ambassadors; Sextus and Romulus, former consuls; with Julius Veturius, and Horatius, senators of the first consideration.

The decemviri being now invested with absolute power, agreed to take the reins of government by turns, and that each should dispense justice for a day.

These magistrates, for the first year, wrought with extreme application: and their work being finished, it was expected that they would be contented to give up their offices; but having known the charms of power, they were not unwilling to resign it: they therefore pretended that some laws were yet wanting to complete their design, and intreated the senate for a continuance of their offices; to which that body assented.

109 They become absolute.

But they soon threw off the mask of moderation; and, regardless either of the approbation of the senate or the people, resolved to continue themselves, against all order, in the decemvirate. A conduct so notorious produced discontents; and these were as sure to produce fresh acts of tyranny. The city was become almost a desert, with respect to all who had any thing to lose; and the decemvirs rapacity was then only discontinued, when they wanted fresh objects to exercise it upon. In this state of slavery, proscription, and mutual distrust, not one citizen was found to strike for his country's freedom; these tyrants continued to rule without controul, being constantly guarded, not with their lictors alone, but a numerous crowd of dependents, clients, and even patricians, whom their vices had confederated round them.

110 Invasion of the Æqui and Volsci.

In this gloomy situation of the state, the Æqui and Volsci, those constant enemies of the Romans, undertook their incursions, resolved to profit by the intestine divisions of the people, and advanced within about 10 miles of Rome.

But the decemviri, being put in possession of all the military as well as of the civil power, divided their army

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my into three parts; whereof one continued with Appius in the city, to keep it in awe; the other two were commanded by his colleagues, and were led, one against the Æqui, and the other against the Sabines. The Roman soldiers had now got into a method of punishing the generals whom they disliked, by suffering themselves to be vanquished in the field. They put it in practice upon this occasion, and shamefully abandoned their camp upon the approach of the enemy. Never was the news of a victory more joyfully received at Rome than the tidings of this defeat: the generals, as is always the case, were blamed for the treachery of their men: some demanded that they should be deposed; others cried out for a dictator to lead the trops to conquest: but among the rest, old Sicinius Dentatus the tribune spoke his sentiments with his usual openness; and treating the generals with contempt, showed all the faults of their discipline in the camp, and of their conduct in the field. Appius, in the mean time, was not remiss in observing the disposition of the people. Dentatus, in particular, was marked out for vengeance, and, under pretence of doing him particular honour, he was appointed legate, and put at the head of the supplies which were sent from Rome to reinforce the army. The office of legate was held sacred among the Romans, as in it were united the authority of a general, with the reverence due to the priesthood. Dentatus, no way suspecting his design, went to the camp with alacrity, where he was received with all the external marks of respect. But the generals soon found means of indulging their desire of revenge. He was appointed at the head of 100 men to go and examine a more commodious place for encampment, as he had very candidly assured the commanders that their present situation was wrong. The soldiers, however, who were given as his attendants, were assassins; wretches who had long been ministers of the vengeance of the decemviri, and who now engaged to murder him, though with all those apprehensions which his reputation, as he was called the *Roman Achilles*, might be supposed to inspire. With these designs, they led him from the way into the hollow bosom of a retired mountain, where they began to set upon him from behind. Dentatus, now too late, perceived the treachery of the decemviri, and was resolved to sell his life as dearly as he could; he therefore put his back to a rock, and defended himself against those who pressed most closely. Though now grown old, he had still the remains of his former valour, and killed no less than 15 of the assailants, and wounded 30. The assassins now therefore, terrified at his amazing bravery, showered in their javelins upon him at a distance; all which he received in his shield with undaunted resolution. The combat, though so unequal in numbers, was managed for some time with doubtful success, till at length his assailants bethought themselves of ascending the rock against which he stood, and thus poured down stones upon him from above. This succeeded; the old soldier fell beneath their united efforts, after having shown by his death that he owed it to his fortitude, and not his fortune, that he had come off so many times victorious. The decemviri pretended to join in the general sorrow for so brave a man, and decreed him a funeral, with the first military honours: but the greatness of their apparent distress, compared with their known hatred, only rendered them still more detestable to the people.

111 The Romans defeated.

112 Murder of Sicinius Dentatus.

But a transaction still more atrocious than the former served to inspire the citizens with a resolution to break all measures of obedience, and at last to restore freedom. Appius, who still remained at Rome, sitting one day on his tribunal to dispense justice, saw a maiden of exquisite beauty, and aged about 15, passing to one of the public schools, attended by a matron her nurse. Conceiving a violent passion for her, he resolved to obtain the gratification of his desire, whatever should be the consequence, and found means to inform himself of her name and family. Her name was *Virginia*, the daughter of Virginius a centurion, then with the army in the field; and she had been contracted to Icilius, formerly a tribune of the people, who had agreed to marry her at the end of the present campaign. Appius, at first, resolved to break this match, and to espouse her himself: but the laws of the Twelve Tables had forbidden the patricians to intermarry with the plebeians; and he could not infringe these, as he was the enacter of them. Nothing therefore remained but a criminal enjoyment; which, as he was long used to the indulgence of his passions, he resolved to obtain. After having vainly tried to corrupt the fidelity of her nurse, he had recourse to another expedient, still more guilty. He pitched upon one Claudius, who had long been the minister of his pleasures, to assert the beautiful maid was his slave, and to refer the cause to his tribunal for decision. Claudius behaved exactly according to his instructions; for entering into the school, where Virginia was playing among her female companions, he seized upon her as his property, and was going to drag her away by force, but was prevented by the people drawn together by her cries. At length, after the first heat of opposition was over, he led the weeping virgin to the tribunal of Appius, and there plausibly exposed his pretensions. He asserted, that she was born in his house, of a female slave, who sold her to the wife of Virginius, who had been barren. That he had several credible evidences to prove the truth of what he said; but that, until they could come together, it was but reasonable the slave should be delivered into his custody, being her proper master. Appius seemed to be struck with the justice of his claims. He observed, that if the reputed father himself were present, he might indeed be willing to delay the delivery of the maiden for some time; but that it was not lawful for him, in the present case, to detain her from her master. He therefore adjudged her to Claudius, as his slave, to be kept by him till Virginius should be able to prove his paternity. This sentence was received with loud clamours and reproaches by the multitude: the women, in particular, came round Virginia, as if willing to protect her from the judge's fury; while Icilius, her lover, boldly opposed the decree, and obliged Claudius to take refuge under the tribunal of the decemvir. All things now threatened an open insurrection; when Appius, fearing the event, thought proper to suspend his judgment till the arrival of Virginius, who was then about 11 miles from Rome, with the army. The day following was fixed for the trial; and, in the mean time, Appius sent letters to the generals to confine Virginius, as his arrival in town might only serve to kindle

kindle ſedition among the people. Theſe letters, however, were intercepted by the centurion's friends, who ſent him down a full relation of the deſign laid againſt the liberty and the honour of his only daughter. Virginius, upon this, pretending the death of a near relation, got permiſſion to leave the camp, and flew to Rome, inſpired with indignation and revenge. Accordingly, the next day he appeared before the tribunal, to the aſtoniſhment of Appius, leading his weeping daughter by the hand, both habited in the deepeſt mourning. Claudius, the accuſer, was alſo there, and began by making his demand. Virginius next ſpoke in turn: he repreſented that his wife had many children; that ſhe had been ſeen pregnant by numbers; that, if he had intentions of adopting a ſuppoſititious child, he would have fixed upon a boy rather than a girl; that it was notorious to all, that his wife had herſelf ſuckled her own child; and that it was ſurpriſing ſuch a claim ſhould be now revived, after a 15 years diſcontinuance. While the father ſpoke this with a ſtern air, Virginia ſtood trembling by, and, with looks of perſuaſive innocence, added weight to all his remonſtrances. The people ſeemed entirely ſatisfied of the hardſhip of his caſe, till Appius, fearing what he ſaid might have dangerous effects upon the multitude, interrupted him, under a pretence of being ſufficiently inſtructed in the merits of the cauſe, and finally adjudged her to Claudius, ordering the lictors to carry her off. The lictors, in obedience to his command, ſoon drove off the throng that preſſed round the tribunal; and now they ſeized upon Virginia, and were delivering her up into the hands of Claudius, when Virginius, who found that all was over, ſeemed to acquieſce in the ſentence. He therefore mildly intreated Appius to be permitted to take a laſt farewel of one whom he had long conſidered as his child; and ſo ſatisfied, he would return to his duty with freſh alacrity. With this the decemvir complied, but upon condition that their endearments ſhould paſs in his preſence. Virginius, with the moſt poignant anguiſh, took his almoſt expiring daughter in his arms, for a while ſupported her head upon his breaſt, and wiped away the tears that rolled down her lovely viſage; and happening to be near the ſhops that ſurrounded the forum, he ſnatched up a knife that lay on the ſhambles, and buried the weapon in her breaſt; then holding it up, reeking with the blood of his daughter, "Appius (he cried) by this blood of innocence, I devote thy head to the infernal gods." Thus ſaying, with the bloody knife in his hand, and threatening deſtruction to whomſoever ſhould oppoſe him, he ran through the city, wildly calling upon the people to ſtrike for freedom, and from thence went to the camp, in order to ſpread a like flame through the army.

He no ſooner arrived at the camp, followed by a number of his friends, but he informed the army of all that was done, ſtill holding the bloody knife in his hand. He aſked their pardon, and the pardon of the gods, for having committed ſo raſh an action, but aſcribed it all to the dreadful neceſſity of the times. The army, already prediſpoſed, immediately with ſhouts echoed their approbation; and decamping, left their generals behind, to take their ſtation once more upon mount Aventine, whither they had retired about 40 years before. The other army, which had been to oppoſe the Sabines, ſeemed to feel a like reſentment, and came over in large parties to join them.

Rome.

111 The decemvirs abolished.

Appius, in the mean time, did all he could to quell the diſturbances in the city; but finding the tumult incapable of controul, and perceiving that his mortal enemies, Valerius and Horatius, were the moſt active in oppoſition, at firſt attempted to find ſafety by flight; nevertheleſs, being encouraged by Oppius, who was one of his colleagues, he ventured to aſſemble the ſenate, and urged the puniſhment of all deſerters. The ſenate, however, were far from giving him the relief he ſought for; they foreſaw the dangers and miſeries that threatened the ſtate, in caſe of oppoſing the incenſed army; they therefore diſpatched meſſengers to them, offering to reſtore their former mode of government. To this propoſal all the people joyfully aſſented, and the army gladly obeyed. Appius and Oppius, one of his colleagues, both died by their own hands in priſon. The other eight decemvirs went into voluntary exile; and Claudius, the pretended maſter of Virginia, was driven out after them.

115 New diſturbances.

The tribunes now grew more turbulent: they propoſed two laws; one to permit plebeians to intermarry with patricians; and the other, to permit them to be admitted to the conſulſhip alſo. The ſenators received theſe propoſals with indignation, and ſeemed reſolved to undergo the utmoſt extremities rather than ſubmit to enact them. However, finding their reſiſtance only increaſe the commotions of the ſtate, they at laſt conſented to paſs the law concerning intermarriages, hoping that this conceſſion would ſatisfy the people. But they were to be appeaſed but for a very ſhort time: for, returning to their old cuſtom of refuſing to enliſt upon the approach of an enemy, the conſuls were forced to hold a private conference with the chief of the ſenate; where, after many debates, Claudius propoſed an expedient as the moſt probable means of ſatisfying the people in the preſent conjuncture. This was, to create ſix or eight governors in the room of conſuls, whereof one half at leaſt ſhould be patricians.

116 Military tribunes elected.

This project was eagerly embraced by the people; yet ſo fickle were the multitude, that though many of the plebeians ſtood, the choice wholly fell upon the patricians who offered themſelves as candidates. Theſe new magiſtrates were called *military tribunes*; they were at firſt but three, afterwards they were increaſed to four, and at length to ſix. They had the power and enſigns of conſuls; yet that power being divided among a number, each ſingly was of leſs authority. The firſt that were choſen only continued in office about three months, the augurs having found ſomething amiſs in the ceremonies of their election.

The military tribunes being depoſed, the conſuls once more came into office; and, in order to lighten the weight of buſineſs which they were obliged to ſuſtain, a new office was erected, namely, that of *cenſors*, to be choſen every fifth year. Their buſineſs was to take an eſtimate of the number and eſtates of the people, and to diſtribute them into their proper claſſes; to inſpect into the lives and manners of their fellow-citizens; to degrade ſenators for miſconduct; to diſmount knights; and to turn down plebeians from their tribes into an inferior, in caſe of miſdemeanour. The two firſt

117 The office of cenſor inſtituted.

Rome.

cons were Papirius and Sempronius, both patricians; and from this order they continued to be elected for near 100 years.

This new creation served to restore peace for some time among the orders; and the triumph gained over the Volscians by Geganius the consul, added to the universal satisfaction that reigned among the people.

This calm, however, was but of short continuance: for, some time after, a famine pressing hard upon the poor, the usual complaints against the rich were renewed; and these, as before, proving ineffectual, produced new seditions. The consuls were accused of neglect in not having laid in proper quantities of corn: they, however, disregarded the murmurs of the populace, content with exerting all their care in attempts to supply the pressing necessities. But though they did all that could be expected from active magistrates, in providing and distributing provisions to the poor; yet Spurius Mælius, a rich knight, who had bought up all the corn of Tuscany, by far outshone them in liberality.

118 Distresses by Mælius a knight.

This demagogue, inflamed with a secret desire of becoming powerful by the contentions in the state, distributed corn in great quantities among the poorer sort each day, till his house became the asylum of all such as wished to exchange a life of labour for one of lazy dependence. When he had thus gained a sufficient number of partizans, he procured large quantities of arms to be brought into his house by night, and formed a conspiracy, by which he was to obtain the command, while some of the tribunes, whom he had found means to corrupt, were to act under him, in seizing upon the liberties of his country. Minucius soon discovered the plot; and informing the senate thereof, they immediately formed the resolution of creating a dictator, who should have the power of quelling the conspiracy, without appealing to the people. Cincinnatus, who was now 80 years old, was chosen once more to rescue his country from impending danger. He began by summoning Mælius to appear; who refused to obey. He next sent Ahala, the master of his horse, to force him; who, meeting him in the forum, and pressing Mælius to follow him to the dictator's tribunal, upon his refusal Ahala killed him upon the spot. The dictator applauded the resolution of his officer, and commanded the conspirator's goods to be sold, and his house to be demolished, distributing his stores among the people.

119 Who is killed.

The tribunes of the people were much enraged at the death of Mælius; and, in order to punish the senate, at the next election, instead of consuls, insisted upon restoring their military tribunes. With this the senate were obliged to comply. The next year, however, the government returned to its ancient channel, and consuls were chosen.

120 The destruction of Veii resolved.

The Veientes had long been the rivals of Rome; they had ever taken the opportunity of its internal distresses to ravage its territories, and had even threatened its ambassadors, sent to complain of these injuries, with outrage. In war they had been extremely formidable, and had cut off almost all the Fabian family; who, to the number of 306 persons, had voluntarily undertaken to defend the frontiers against their incursions. It seemed now therefore determined, that the city of Veii, whatever it should cost, was to fall; and the Romans accordingly sat regularly down before it, prepared for a long and painful resistance. The strength of the place, or the unskilfulness of the besiegers, may be inferred from the continuance of the siege, which lasted for 10 years; during which time the army continued encamped round it, lying in winter under tents made of the skins of beasts, and in summer driving on the operations of the attack. Various was the success, and many were the commanders that directed the siege: sometimes all the besiegers works were destroyed, and many of their men cut off by sallies from the town; sometimes they were annoyed by an army of Veians, who attempted to bring assistance from without. A siege so bloody seemed to threaten depopulation to Rome itself, by draining its forces continually away; so that a law was obliged to be made for all the bachelors to marry the widows of the soldiers who were slain. In order to carry it on with greater vigour, Furius Camillus was created dictator, and to him was intrusted the sole power of managing the long protracted war. Camillus, who, without intrigue or any solicitation, had raised himself to the first eminence in the state, had been made one of the censors some time before, and was considered as the head of that office; he was afterwards made a military tribune, and had in this post gained several advantages over the enemy. It was his great courage and abilities in the above offices that made him thought most worthy to serve his country on this pressing occasion. Upon his appointment, numbers of the people flocked to his standard, confident of success under so experienced a commander. Conscious, however, that he was unable to take the city by storm, he secretly wrought a mine into it with vast labour, which opened into the midst of the citadel. Certain thus of success, and finding the city incapable of relief, he sent to the senate, desiring that all who chose to share in the plunder of Veii should immediately repair to the army. Then giving his men directions how to enter at the breach, the city was instantly filled with his legions, to the amazement and consternation of the besieged, who, but a moment before, had rested in perfect security. Thus, like a second Troy, was the city of Veii taken, after a 10 years siege, and with its spoils enriched the conquerors; while Camillus himself, transported with the honour of having subdued the rival of his native city, triumphed after the manner of the kings of Rome, having his chariot drawn by four milk-white horses; a distinction which did not fail to disgust the majority of the spectators, as they considered those as sacred, and more proper for doing honour to their gods than their generals.

Can

His usual good fortune attended Camillus in another expedition against the Falisci; he routed their army, and besieged their capital city Falerii, which threatened a long and vigorous resistance. Here a schoolmaster, who had the care of the children belonging to the principal men of the city, having found means to decoy them into the Roman camp, offered to put them into the hands of Camillus, as the surest means of inducing the citizens to a speedy surrender. The general was struck with the treachery of a wretch whose duty it was to protect innocence, and not to betray it; and immediately ordered him to be stripped, his hands tied behind him, and in that ignominious manner to be whipped into the town by his own scholars.

His city Falii

This generous behaviour in Camillus effected more than his arms could do: the magistrates of the town immediately submitted to the senate, leaving to Camillus the conditions of their surrender; who only fined them in a sum of money to satisfy his army, and received them under the protection and into the alliance of Rome.

Notwithstanding the veneration which the virtues of Camillus had excited abroad, they seemed but little adapted to bring over the respect of the turbulent tribunes at home, as they raised some fresh accusation against him every day. To their other charges they added that of his having concealed a part of the plunder of Veii, particularly two brazen gates, for his own use; and appointed him a day on which to appear before the people. Camillus, finding the multitude exasperated against him upon many accounts, detesting their ingratitude, resolved not to wait the ignominy of a trial; but, embracing his wife and children, prepared to depart from Rome. He had already passed as far as one of the gates, unattended on his way, and unlamented. There he could suppress his indignation no longer; but, turning his face to the capitol, and lifting up his hands to heaven, intreated all the gods that his country might one day be sensible of their injustice and ingratitude; and so saying, he passed forward to take refuge at Ardea, where he afterwards learned that he had been fined 1500 ases by the tribunes at home.

The Romans indeed soon had reason to repent their usage of Camillus; for now a more formidable enemy than ever they had met with threatened the republic: an inundation of Gauls, leaving their native woods, under the command of one Brennus, wasted every thing with fire and sword. It is said that one Cœditius, a man of the lowest rank, pretended to have heard a miraculous voice, which pronounced distinctly these words: "Go to the magistrates, and tell them that the Gauls draw near." The meanness of the man made his warning despised; though, when the event showed the truth of his prediction, Camillus erected a temple to the unknown Deity, and the Romans invented for him the name of *Aius Locutius*. Messenger after messenger arrived with the news of the progress and devastations of the Gauls; but the Romans behaved with as much security as if it had been impossible for them to have felt the effects of their depredations. At last envoys arrived at Rome, imploring the assistance of the republic against an army of Gauls, which had made an irruption into Italy, and now besieged their city. The occasion of the irruption and siege was this: Arunx, one of the chief men of Clusium in Hetruria, had been guardian to a young lucumo, or lord of a lucumony, and had educated him in his house from his infancy. The lucumo, as soon as he was of an age to feel the force of passion, fell in love with his guardian's wife; and, upon the first discovery of their intrigue, conveyed her away. Arunx endeavoured to obtain reparation for the injury he had received; but the lucumo, by his interest and money, gained over the magistrates: so that the injured guardian, finding no protectors in Hetruria, resolved to make his application to the Gauls. The people among all the Celtic nations, to whom he chose to address himself, were the Senones; and, in order to engage them in his quarrel, he aquainted them with the great plenty of Italy, and made them taste of some Italian wines. Upon this the Senones resolved to follow him; and a numerous army was immediately formed, which passing the Alps, under the conduct of their Hetrurian guide, and leaving the Celtæ in Italy unmolested, fell upon Umbria, and possessed themselves of all the country from Ravenna to Picenum. They were about six years in settling themselves in their new acquisitions, while the Romans were carrying on the siege of Veii. At length Arunx brought the Senones before Clusium, in order to besiege that place, his wife and her lover having shut themselves up there.

Rome.

126 The Romans send an embassy to them.

The senate, being unwilling to engage in an open war with a nation which had never offended them, sent an embassy of three young patricians, all brothers, and of the Fabian family, to bring about an accommodation between the two nations. These ambassadors, being arrived at the camp of the Gauls, and conducted into the council, offered the mediation of Rome; and demanded of Brennus, the leader of the Gauls, What injury the Clusini had done him; or what pretensions any people from a remote country could have upon Hetruria? Brennus answered proudly, that his right lay in his sword, and that all things belonged to the brave; but that, without having recourse to this primitive law of nature, he had a just complaint against the Clusians, who, having more lands than they could cultivate, had refused to yield to him those they left untilled: And what other motives had you yourselves, Romans (said he), to conquer so many neighbouring nations? You have deprived the Sabines, the Albans, the Fidenates, the Æqui, and the Volsci, of the best part of their territories. Not that we accuse you of injustice; but it is evident, that you thought this to be the prime and most ancient of all laws, to make the weak give way to the strong. Forbear therefore to interest yourselves for the Clusini, or allow us to take the part of the people you have subdued."

127 Imprudent conduct of the ambassadors.

The Fabii were highly provoked at so haughty an answer; but, dissembling their resentment, desired leave to go into the town, under pretence of conferring with the magistrates. But they were no sooner there, than they began to stir up the inhabitants to a vigorous defence; nay, forgetting their character, they put themselves at the head of the besieged in a sally, in which Q. Fabius, the chief of the ambassadors, slew with his own hand one of the principal officers of the Gauls. Hereupon Brennus, calling the gods to witness the perfidiousness of the Romans, and their violating the law of nations, immediately broke up the siege of Clusium, and marched leisurely to Rome, having sent an herald before him to demand that those ambassadors, who had so manifestly violated the law of nations, should be delivered up to him. The Roman senate was greatly perplexed between their regard for the law of nations and their affection for the Fabii. The wisest of the senate thought the demand of the Gauls to be but just and reasonable: however, as it concerned persons of great consequence and credit, the conscript fathers referred the affair to the people assembled by curiæ. As the Fabian family was very popular, the curiæ were so far from condemning the three brothers, that, at the next election of military tribunes, they were chosen the first.

128 The Gauls require them to be delivered up to them but are refused.

Rome.

first. Brennus, looking upon the promotion of the Fabii as an high affront on his nation, hastened his march to Rome.

As his army was very numerous, the inhabitants of the towns and villages through which he passed left their habitations at his approach; but he stopped nowhere, declaring that his design was only to be revenged on the Romans. The six military tribunes, to wit, Q. Fabius, Caeso Fabius, Caius Fabius, Q. Sulpitius, Q. Servilius, and Sextus Cornelius, marched out of Rome at the head of 40,000 men, without either sacrificing to the gods or consulting the auspices; essential ceremonies among a people that drew their courage and confidence from the propitious signs which the augurs declared to them. As most of the military tribunes were young, and men of more valour than experience, they advanced boldly against the Gauls, whose army was 70,000 strong. The two armies met near the river Allia, about 60 furlongs from Rome. The Romans, that they might not be surrounded by the enemy, extended their wings so far as to make their centre very thin. Their best troops, to the number of 24,000 men, they posted between the river and the adjoining hills; the rest they placed on the hills. The Gauls first attacked the latter, who being soon put into confusion, the forces in the plain were struck with such terror that they fled without drawing their swords. In this general disorder, most of the soldiers, instead of returning to Rome fled to Veii: some were drowned as they endeavoured to swim across the Tiber; many fell in the pursuit by the sword of the conquerors; and some got to Rome, which they filled with terror and consternation, it being believed there that all the rest were cut off. The day after the battle, Brennus marched his troops into the neighbourhood of Rome, and encamped on the banks of the Anio. Thither his scouts brought him word, that the gates of the city lay open, and that not one Roman was to be seen on the ramparts. This made him apprehensive of some ambuscade, it being unreasonable to suppose that the Romans would abandon their city to be plundered and sacked without making any resistance. On this consideration he advanced slowly, which gave the Romans an opportunity to throw into the Capitol all the men who were fit to bear arms. They carried into it all the provisions they could get; and, that they might last the longer, admitted none into the place but such as were capable of defending it.

129 The Romans entirely defeated.

130 They retire into the Capitol.

As for the city, they had not sufficient forces to defend it; and therefore the old men, women, and children, seeing themselves abandoned, fled to the neighbouring towns. The Vestals, before they left Rome, took care to hide every thing appropriated to the gods which they could not carry off. The two palladiums, and the sacred fire, they took with them. When they came to the Janiculus, one Albinius, a plebeian, who was conveying his wife and children in a carriage to a place of safety, seeing the sacred virgins bending under their load, and their feet bloody, made his family alight, put the priestesses and their gods into the carriage, and conducted them to Cære, a city of Hetruria, where they met with a favourable reception. The Vestals remained at Cære, and there continued to perform the usual rites of religion; and hence those rites were called *ceremonies*. But while the rest of the citizens at Rome were providing for their safety, about 80 of the most illustrious and venerable old men, rather than fly from their native city, chose to devote themselves to death by a vow, which Fabius the high pontiff pronounced in their names. The Romans believed, that, by these voluntary devotements to the infernal gods, disorder and confusion was brought among the enemy. Of these brave old men some were pontifices, others had been consuls, and others generals of armies, who had been honoured with triumphs. To complete their sacrifice with a solemnity and pomp becoming the magnanimity and constancy of the Romans, they dressed themselves in their pontifical, consular, and triumphal robes; and repairing to the forum, seated themselves there in their curule chairs, expecting the enemy and death with the greatest constancy.

131 Origin of the word *ceremonies*.

At length Brennus, having spent three days in useless precautions, entered the city the fourth day after the battle. He found the gates open, the walls without defence, and the houses without inhabitants. Rome appeared to him like a mere desart; and this solitude increased his anxiety. He could not believe, either that all the Romans were lodged in the Capitol, or that so numerous a people should abandon the place of their nativity. On the other hand, he could nowhere see any armed men but on the walls of the citadel. However, having first secured all the avenues to the Capitol with strong bodies of guards, he gave the rest of his soldiers leave to disperse themselves all over the city and plunder it. Brennus himself advanced into the forum with the troops under his command, in good order; and there he was struck with admiration at the unexpected sight of the venerable old men who had devoted themselves to death. Their magnificent habits, the majesty of their countenances, the silence they kept, their modesty and constancy at the approach of his troops, made him take them for so many deities: for they continued as motionless as statues, and saw the enemy advance without showing the least concern. The Gauls kept a great while at an awful distance from them, being afraid to come near them. But at length one soldier bolder than the rest, having out of curiosity touched the beard of M. Papirius, the venerable old man, not being used to such familiarity, gave him a blow on the head with his ivory staff. The soldier in revenge immediately killed him; and the rest of the Gauls following his example, slaughtered all those venerable old men without mercy.

Rome burnt.

After this the enemy set no bounds to their rage and fury. They plundered all places, dragging such of the Romans as had shut themselves up in their houses into the streets, and there putting them to the sword without distinction of age or sex. Brennus then invested the Capitol; but being repulsed with great loss, in order to be revenged of the Romans for their resistance, he resolved to lay the city in ashes. Accordingly, by his command, the soldiers set fire to the houses, demolished the temples and public edifices, and rased the walls to the ground. Thus was the famous city of Rome entirely destroyed; nothing was to be seen in the place where it stood but a few little hills covered with ruins, and a wide waste, in which the Gauls who invested the Capitol were encamped. Brennus, finding he should never be able to take a place which nature had so well fortified otherwise than by famine, turned the siege into a blockade. But in the mean time, his

They i the Ca

army

Rome.

army being distressed for want of provisions, he sent out parties to pillage the fields, and raise contributions in the neighbouring cities. One of these parties appeared before Ardea, where the great Camillus had now spent two years in a private life. Notwithstanding the affront he had received at Rome, the love he bore his country was not in the least diminished. The senate of Ardea being met to deliberate on the measures to be taken with relation to the Gauls, Camillus, more afflicted at the calamities of his country than at his own banishment, desired to be admitted into the council, where, with his eloquence, he prevailed upon the Ardeates to arm their youth in their own defence, and refuse the Gauls admittance into their city.

Hereupon the Gauls encamped before the city; and as they despised the Ardeates after they had made themselves masters of Rome, they preserved neither order nor discipline in the camp, but spent whole days in drinking. Hereupon Camillus, having easily persuaded the youth of the city to follow him, marched out of Ardea in a very dark night, surprised the Gauls drowned in wine, and made a dreadful slaughter of them. Those who made their escape under the shelter of the night fell next day into the hands of the peasants, by whom they were massacred without mercy. This defeat of the enemy revived the courage of the Romans scattered about the country, especially of those who had retired to Veii after the unfortunate battle of Allia. There was not one of them who did not condemn himself for the exile of Camillus, as if he had been the author of it; and looking upon that great man as their last resource, they resolved to choose him for their leader. Accordingly, they sent without delay ambassadors to him, beseeching him to take into his protection the fugitive Romans, and the wrecks of the defeat at Allia. But Camillus would not accept of the command of the troops till the people assembled by curiæ had legally conferred it upon him. He thought the public authority was lodged in the hands of those who were shut up in the citadel, and therefore would undertake nothing at the head of the Roman troops till a commission was brought him from thence.

134 Great labour of Camillus.

To do this was very difficult, the place being invested on all sides by the enemy. However, one Pontius Cominius, a man of mean birth, but bold, and very ambitious of glory, undertook it. He put on a light habit, and, providing himself with cork to keep the longer above water, threw himself into the Tiber above Rome in the beginning of the night, and suffered himself to be carried down with the stream. At length he came to the foot of the capitol, and landed at a steep place where the Gauls had not thought it necessary to post any centinels. There he mounted with great difficulty to the rampart of the citadel; and having made himself known to the guards, he was admitted into the place, and conducted to the magistrates. The senate being immediately assembled, Pontius gave them an account of Camillus's victory; and in the name of all the Romans at Veii demanded that great captain for their general. There was not much time spent in debates: the curiæ being called together, the act of condemnation which had been passed on Camillus was abrogated, and he named dictator with one voice. Pontius was immediately dispatched with the decree; and the same good fortune which had attended him to the capitol accompanied him in his return. Thus was Camillus, from the state of banishment, raised at once to be sovereign magistrate of his country. His promotion to the command was no sooner known, but soldiers flocked from all parts to his camp; insomuch that he soon saw himself at the head of above 40,000 men, partly Romans and partly allies, who all thought themselves invincible under so great a general.

135 Re-chosen dictator.

While he was taking proper measures to raise the blockade of the citadel, some Gauls rambling round the place, perceived on the side of the hill the print of Pontius's hands and feet. They observed likewise, that the moss on the rocks was in several places torn up. From these marks they concluded, that somebody had lately gone up to and returned from the capitol. The Gauls immediately made their report to Brennus of what they had observed; and that experienced commander laid a design, which he imparted to nobody, of surprising the place by the same way that the Roman had ascended. With this view he chose out of the army such soldiers as had dwelt in mountainous countries, and been accustomed from their youth to climb precipices. These he ordered, after he had well examined the nature of the place, to ascend in the night the same way that was marked out for them; climbing two abreast, that one might support the other in getting up the steep parts of the precipice. By this means they advanced with much difficulty from rock to rock, till they arrived at the foot of the wall. They proceeded with such silence, that they were not discovered or heard, either by the centinels who were upon guard in the citadel, or even by the dogs, that are usually awaked and alarmed at the least noise. But though they eluded the sagacity of the dogs, they could not escape the vigilance of the geese. A flock of these birds was kept in a court of the capitol in honour of Juno, and near her temple. Notwithstanding the want of provisions in the garrison, they had been spared out of religion; and as these creatures are naturally quick of hearing, they were alarmed at the first approach of the Gauls; so that running up and down, with their cackling and beating of their wings, they awaked Manlius, a gallant soldier, who some years before had been consul. He sounded an alarm, and was the first man who mounted the rampart, where he found two Gauls already upon the wall. One of these offered to discharge a blow at him with his battle-ax; but Manlius cut off his right hand at one blow, and gave the other such a push with his buckler, that he threw him headlong from the top of the rock to the bottom. He, in his fall, drew many others with him; and, in the mean time, the Romans crowding to the place, pressed upon the Gauls, and tumbled them one over another. As the nature of the ground would not suffer them to make a regular retreat, or even to fly, most of them, to avoid the swords of the enemy, threw themselves down the precipice, so that very few got safe back to their camp.

136 The Gauls endeavour to surprise the Capitol;

137 But are discovered and repulsed.

As it was the custom of the Romans at that time not to suffer any commendable action to go unrewarded, the tribune Sulpitius assembled his troops the next morning, in order to bestow the military rewards on those who, the night before, had deserved them. Among these Manlius was first named; and, in acknowledgment of the important service he had just rendered the state, every soldier gave him part of the corn which he recei-

Rome.

ved sparingly from the public stock, and a little measure of wine out of his scanty allowance. An inconsiderable present indeed in itself, but very acceptable at that time to the person on whom it was bestowed. The tribune's next care was to punish the negligent: accordingly the captain of the guard, who ought to have had an eye over the centinels, was condemned to die, and, pursuant to his sentence, thrown down from the top of the capitol. The Romans extended their punishments and rewards even to the animals. Geese were ever after had in honour at Rome, and a flock of them always kept at the expence of the public. A golden image of a goose was erected in memory of them, and a goose every year carried in triumph upon a soft litter finely adorned; whilst dogs were held in abhorrence by the Romans, who every year impaled one of them on a branch of elder.

The blockade of the Capitol had already lasted seven months; so that the famine began to be very sensibly felt both by the besieged and besiegers. Camillus, since his nomination to the dictatorship, being master of the country, had posted strong guards on all the roads; so that the Gauls dared not stir out for fear of being cut to pieces. Thus Brennus, who besieged the Capitol, was besieged himself, and suffered the same inconveniences which he made the Romans undergo. Besides, a plague raged in his camp, which was placed in the midst of the ruins of the demolished city, his men lying confusedly among the dead carcases of the Romans, whom they had slain, and not buried. So great a number of them died in one quarter of the city, that it was afterwards called *Busta Gallica*, or the place where the dead bodies of the Gauls were burnt. But, in the mean time, the Romans in the Capitol were more pinched with want than the Gauls. They were reduced to the last extremity, and at the same time ignorant both of the lamentable condition to which the enemy's army was brought, and of the steps Camillus was taking to relieve them. That great general only waited for a favourable opportunity to fall upon the enemy; but, in the mean time, suffered them to pine away in their infected camp, not knowing the extreme want the Romans endured in the Capitol, where they were so destitute of all sorts of provisions, that they could no longer subsist. Matters being brought to this sad pass on both sides, the centinels of the Capitol, and those of the enemy's army, began to talk to one another of an accommodation. Their discourses came at length to the ears of their leaders, who were not averse to the design.

The senate, not knowing what was become of Camillus, and finding themselves hard pinched by hunger, resolved to enter upon a negotiation, and empowered Sulpitius, one of the military tribunes, to treat with the Gauls; who made no great difficulty in coming to terms, they being no less desirous than the Romans to put an end to the war. In a conference, therefore, between Brennus and Sulpitius, an agreement was made, and sworn to. The Romans were to pay to the Gauls 1000 pounds weight of gold, that is, 45,000l. Sterling; and the latter were to raise the siege of the Capitol, and quit all the Roman territories. On the day appointed, Sulpitius brought the sum agreed on, and Brennus the scales and weights; for there were no gold or silver coins at that time, metals passing only by weight. We are told, that the weights of the Gauls were false, and their scales untrue; which Sulpitius complaining of, Brennus, instead of redressing the injustice, threw his sword and belt into the scale where the weights were; and when the tribune asked him the meaning of so extraordinary a behaviour, the only answer he gave was, *Væ victis!* "Wo to the conquered!" Sulpitius was so stung with this haughty answer, that he was for carrying the gold back into the Capitol, and sustaining the siege to the last extremity; but others thought it advisable to put up the affront, since they had submitted to a far greater one, which was to pay any thing at all.

138 The Romans agree to pay 1000 pounds of gold for their ransom.

During these disputes of the Roman deputies among themselves and with the Gauls, Camillus advanced with his army to the very gates of the city; and being there informed of what was doing, he commanded the main body to follow him slowly and in good order, while he, with the choicest of his men, hastened to the place of the parley. The Romans, overjoyed at his unexpected arrival, opened to make room for him as the supreme magistrate of the republic, gave him an account of the treaty they had made with the Gauls, and complained of the wrong Brennus did them in the execution of it. They had scarce done speaking, when Camillus cried out, "Carry back this gold into the Capitol; and you, Gauls, retire with your scales and weights. Rome must not be redeemed with gold, but with steel. Brennus replied, That he contravened a treaty which was concluded and confirmed with mutual oaths. "Be it so (answered Camillus); yet it is of no force, having been made by an inferior magistrate, without the privity or consent of the dictator. I, who am invested with the supreme authority over the Romans, declare the contract void." At these words Brennus flew into a rage; and both sides drawing their swords, a confused scuffle ensued among the ruins of the houses, and in the narrow lanes. The Gauls, after an inconsiderable loss, thought fit to retire within their camp; which they abandoned in the night, not caring to engage Camillus's whole army, and, having marched eight miles, encamped on the Gabinian way. Camillus pursued them as soon as it was day, and, coming up with them, gave them a total overthrow. The Gauls, according to Livy, made but a faint resistance, being disheartened at the loss they had sustained the day before. It was not, says that author, so much a battle as a slaughter. Many of the Gauls were slain in the action, more in the pursuit; but the greater number were cut off, as they wandered up and down in the fields, by the inhabitants of the neighbouring villages. In short, there was not one single Gaul left to carry to his countrymen the news of this fatal catastrophe. The camp of the barbarians was plundered; and Camillus, loaded with spoils, returned in triumph to the city, the soldiers in their songs styling him, *Romulus, Father of his country*, and *Second founder of Rome*.

139 Camillus drives away the Gauls.

140 The Gauls entirely cut off.

As the houses of Rome were all demolished, and the walls razed, the tribunes of the people renewed, with more warmth than ever, an old project which had occasioned great disputes. They had formerly proposed a law for dividing the senate and government between the cities of Veii and Rome. Now this law was revived; nay, most of the tribunes were for entirely abandoning their old ruined city, and making Veii the sole seat

141 Disputes about removing to Veii.

seat of the empire. The people were inclined to favour the project, Veii offering them a place fortified by art and nature, good houses ready built, a wholesome air, and a fruitful territory. On the other hand, they had no materials for rebuilding a whole city, were quite exhausted by misfortunes, and even their strength was greatly diminished. This gave them a reluctance to so great an undertaking, and emboldened the tribunes to utter seditious harangues against Camillus, as a man too ambitious of being the restorer of Rome. They even insinuated that the name of Romulus, which had been given him, threatened the republic with a new king. But the senate took the part of Camillus, and, being desirous to see Rome rebuilt, continued him, contrary to custom, a full year in the office of dictator; during which time he made it his whole business to suppress the strong inclination of the people to remove to Veii. Having assembled the curiæ, he expostulated with them upon the matter; and, by arguments drawn from prudence, religion, and glory, prevailed upon them to lay aside all thoughts of leaving Rome. As it was necessary to have the resolution of the people confirmed by the senate, the dictator reported it to the conscript fathers, leaving every one at full liberty to vote as he pleased. While L. Lucretius, who was to give his opinion the first, was beginning to speak, it happened that a centurion, who with his company had been upon guard, and was then marching by the senate-house, cried out aloud, "Plant your colours, ensign; this is the best place to stay in." These words were considered as dictated by the gods themselves; and Lucretius, taking occasion from them to urge the necessity of staying at Rome, "An happy omen, (cried he); I adore the gods who gave it." The whole senate applauded his words; and a decree was passed without opposition for rebuilding the city.

Though the tribunes of the people were defeated by Camillus in this point, they resolved to exercise their authority against another patrician, who had indeed deserved punishment. This was Q. Fabius, who had violated the law of nations, and thereby provoked the Gauls, and occasioned the burning of Rome. His crime being notorious, he was summoned by C. Martius Rutilus before the assembly of the people, to answer for his conduct in his embassy. The criminal had reason to fear the severest punishment: but his relations gave out that he died suddenly; which generally happened when the accused person had courage enough to prevent his condemnation, and the shame of a public punishment. On the other hand, the republic gave an house situated on the Capitol to M. Manlius, as a monument of his valour, and of the gratitude of his fellow-citizens. Camillus closed this year by laying down his dictatorship: whereupon an interregnum ensued, during which he governed the state alternately with P. Cornelius Scipio; and it fell to his lot to preside at the election of new magistrates, when L. Valerius Poplicola, L. Virginius Tricostus, P. Cornelius Cossus, A. Manlius Capitolinus, L. Æmilius Mamercinus, and L. Posthumius Albinus, were chosen. The first care of these new magistrates was to collect all the ancient monuments of the religion and civil laws of Rome which could be found among the ruins of the demolished city. The laws of the twelve tables, and some of the laws of the kings, had been written on brass, and fixed up in the forum; and the treaties made with several nations had been engraved on pillars erected in the temples. Pains were therefore taken to gather up the ruins of these precious monuments; and what could not be found was supplied by memory. The pontifices, on their part, took care to reestablish the religious ceremonies, and made also a list of lucky and unlucky days.

142 Cornelius Manlius rewarded.

143 The city rebuilt.

And now the governors of the republic applied themselves wholly to rebuild the city. Plutarch tells us, that as the workmen were digging among the ruins of the temple of Mars, they found Romulus's augural staff untouched by the flames; and that this was looked upon as a prodigy, from whence the Romans inferred that their city would continue for ever. The expence of building private houses was partly defrayed out of the public treasure. The ædiles had the direction of the works; but they had so little taste for order or beauty, that the city, when rebuilt, was even less regular than in the time of Romulus. And though in Augustus's time, when Rome became the capital of the known world, the temples, palaces, and private houses, were built in a more magnificent manner than before; yet even then these new decorations did not rectify the faults of the plan upon which the city had been built after its first demolition.

144 A general combination against the Romans.

Rome was scarce restored, when her citizens were alarmed by the news that all her neighbours were combining to her destruction. The Æqui, the Volsci, the Hetrurians, and even her old friends the Latins and the Hernici, entered into an alliance against her, in hopes of oppressing her before she had recovered her strength. The republic, under this terror, nominated Camillus dictator a third time. This great commander, having appointed Servilius to be his general of horse, summoned the citizens to take arms, without excepting even the old men. He divided the new levies into three bodies. The first, under the command of A. Manlius, he ordered to encamp under the walls of Rome; the second he sent into the neighbourhood of Veii; and marched himself at the head of the third, to relieve the tribunes, who were closely besieged in their camp by the united forces of the Volsci and Latins. Finding the enemy encamped near Lanuvium, on the declivity of the hill Marcius, he posted himself behind it, and, by lighting fires, gave the distressed Romans notice of his arrival. The Volsci and Latins, when they understood that Camillus was at the head of an army newly arrived, were so terrified, that they shut themselves up in their camp, which they fortified with great trees cut down in haste. The dictator, observing that this barrier was of green wood, and that every morning there arose a great wind, which blew full upon the enemy's camp, formed the design of taking it by fire. With this view he ordered one part of his army to go by break of day with fire-brands to the windward side of the camp, and the other to make a brisk attack on the opposite side. By this means the enemy were entirely defeated, and their camp taken. Camillus then commanded his men to extinguish the flames, in order to save the booty, with which he rewarded his army. He then left his son in the camp to guard the prisoners; and, entering the country of the Æqui, made himself master of their capital city Bola. From thence he marched against the Volsci; when

145 Camillus defeats the Volsci and Latins.

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whom he entirely routed, after they had waged war with the Romans for the space of 107 years. Having subdued the unmeritable people, he penetrated into Hetruria, in order to relieve Sutrium, a town in that country in alliance with Rome, and besieged by a numerous army of Hetrurians. But, notwithstanding all the expedition Camillus could use, he did not reach the place before it had capitulated. The Sutrini, being greatly distressed for want of provisions, and exhausted with labour, had surrendered to the Hetrurians, who had granted them nothing but their lives, and the cloaths on their backs. In this destitute condition they had left their own country, and were going in search of new habitations, when they met Camillus leading an army to their relief.

146 And he Hetrurians.

The unfortunate multitude no sooner saw the Romans, but they threw themselves at the dictator's feet, who, moved at this melancholy sight, desired them to take a little rest, and refresh themselves, adding, that he would soon dry up their tears, and transfer their sorrows from them to their enemies. He imagined, that the Hetrurians would be wholly taken up in plundering the city, without being upon their guard, or observing any discipline. And herein he was not mistaken. The Hetrurians did not dream that the dictator could come so speedily from such a distance to surprise them; and therefore were wholly employed in plundering the houses and carrying off the booty, or feasting on the provisions they had found in them. Many of them were put to the sword, and an incredible number made prisoners; and the city was restored to its ancient inhabitants, who had not waited in vain for the performance of the dictator's promise. And now, after these glorious exploits, which were finished in so short a time, the great Camillus entered Rome in triumph a third time.

Camillus having resigned his dictatorship, the republic chose six new military tribunes, Q. Quinctius, Q. Servius, L. Julius, L. Aquilius, L. Lucretius, and Ser. Sulpitius. During their administration the country of the Æqui was laid waste, in order to put it out of their power to revolt anew; and the two cities of Cortuosa and Contenebra, in the lucumony of the Tarquiniensis, were taken from the Hetrurians, and entirely demolished. At this time it was thought proper to repair the Capitol, and add new works to that part of the hill where the Gauls had endeavoured to scale the citadel. These works were esteemed very beautiful, as Livy informs us, even in the time of Augustus, after the city was embellished with most magnificent decorations.

And now Rome being reinstated in her former flourishing condition, the tribunes of the people, who had been for some time quiet, began to renew their seditious harangues, and revive the old quarrel about the division of the conquered lands. The patricians had appropriated to themselves the Pomptin territory lately taken from the Volsci, and the tribunes laid hold of this opportunity to raise new disturbances. But the citizens being so drained of their money that they had not enough left to cultivate new farms and stock them with cattle, the declamations of the tribunes made no impression upon their minds; so that the project vanished. As for the military tribunes, they owned that their election had been defective; and, lest the irregularities of the former comitia should be continued in the succeeding ones, they voluntarily laid down their office. So that, after a short interregnum, during which M. Manlius, Ser. Sulpitius, and L. Valerius Potitus, governed the republic, six new military tribunes L. Papirius, C. Sergius, L. Æmilius, L. Menenius, L. Valerius, and C. Cornelius, were chosen for the ensuing year, which was spent in works of peace. A temple, which had been vowed to Mars during the war with the Gauls, was built, and consecrated by T. Quinctius, who presided over the affairs of religion. As there had hitherto been but few Roman tribes beyond the Tiber which had a right of suffrage in the comitia, four new ones were added, under the name of the *Stellatina*, *Tramentina*, *Sabatina*, and *Arnienfis*; so that the tribes were now in all 25, which enjoyed the same rights and privileges.

147 Unbound over conferred on Camillus.

The expectation of an approaching war induced the centuries to choose Camillus one of the military tribunes for the next year. His colleagues were Ser. Cornelius, Q. Servilius, L. Quinctius, L. Horatius, and P. Valerius. As all these were men of moderation, they agreed to invest Camillus with the sole management of affairs in time of war; and accordingly in full senate transferred all their power into his hands; so that he became in effect dictator. It had been already determined in the senate to turn the arms of the republic against the Hetrurians; but, upon advice that the Antiates had entered the Pomptin territory, and obliged the Romans who had taken possession of it to retire, it was thought necessary to humble them before the republic engaged in any other enterprise. The Antiates had joined the Latins and Hernici near Satricum; so that the Romans, being terrified at their prodigious numbers, shewed themselves very backward to engage: which Camillus perceiving, he instantly mounted his horse, and riding through all the ranks of the army, encouraged them by a proper speech; after which he dismounted, took the next standard-bearer by the hand, led him towards the enemy, and cried out, *Soldiers, advance*. The soldiery were ashamed not to follow a general who exposed himself to the first attack; and therefore, having made a great shout, they fell upon the enemy with incredible fury. Camillus, in order to increase their eagerness still more, commanded a standard to be thrown into the middle of the enemy's battalions; which made the soldiers, who were fighting in the first ranks, exert all the resolution they could to recover it. The Antiates, not being able any longer to make head against the Romans, gave way, and were entirely defeated. The Latins and Hernici separated from the Volsci, and returned home. The Volsci, seeing themselves thus abandoned by their allies, took refuge in the neighbouring city of Satricum: which Camillus immediately invested, and took by assault. The Volsci threw down their arms, and surrendered at discretion. He then left his army under the command of Valerius; and returned to Rome to solicit the consent of the senate, and to make the necessary preparations for undertaking the siege of Antium.

148 Who gives the Antiates, &c. a great defeat.

149 His other successes.

But, while he was proposing this affair to the senate, deputies arrived from Nepet and Sutrium, two cities in alliance with Rome in the neighbourhood of Hetruria, demanding succours against the Hetrurians, who threatened to besiege these two cities, which were the keys of Hetruria. Hereupon the expedition against

Antium

Antium was laid aſide, and Camillus commanded to haſten to the relief of the allied cities, with the troops which Servilius had kept in readineſs at Rome in caſe of an emergency. Camillus immediately ſet out for the new war; and, upon his arrival before Sutrium, found that important place not only beſieged, but almoſt taken, the Hetrurians having made themſelves maſters of ſome of the gates, and gained poſſeſſion of all the avenues leading to the city. However, the inhabitants no ſooner heard that Camillus was come to their relief, but they recovered their courage, and, by barricadoes made in the ſtreets, prevented the enemy from making themſelves maſters of the whole city. Camillus in the mean time having divided his army into two bodies, ordered Valerius to march round the walls, as if he deſigned to ſcale them, while he with the other undertook to charge the Hetrurians in the rear, force his way into the city, and ſhut up the enemy between the beſieged and his troops. The Romans no ſooner appeared but the Hetrurians betook themſelves to a diſorderly flight through a gate which was not inveſted, Camillus's troops made a dreadful ſlaughter of them within the city, while Valerius put great numbers of them to the ſword without the walls. From reconquering Sutrium, Camillus haſtened to the relief of Nepet. But that city being better affected to the Hetrurians than to the Romans, had voluntarily ſubmitted to the former. Wherefore Camillus, having inveſted it with his whole army, took it by aſſault, put all the Hetrurian ſoldiers without diſtinction to the ſword, and condemned the authors of the revolt to die by the axes of the lictors. Thus ended Camillus's military tribuneſhip, in which he acquired no leſs reputation than he had done in the moſt glorious of his dictatorſhips.

In the following magiſtracy of ſix military tribunes, a dangerous ſedition is ſaid to have taken place through the ambition of Marcus Manlius, who had ſaved the capitol from the Gauls in the manner already related. Though this man had pride enough to deſpiſe all the other great men in Rome, yet he envied Camillus, and took every opportunity of magnifying his own exploits beyond thoſe of the dictator. But not finding ſuch a favourable reception from the nobility as he deſired, he concerted meaſures with the tribunes of the people, and ſtrove to gain the affections of the multitude. Not content with renewing the propoſal for the diſtribution of conquered lands, he alſo made himſelf an advocate for inſolvent debtors, of whom there was now a great number, as moſt of the lower claſs had been obliged to borrow money in order to rebuild their houſes. The ſenate, alarmed at this oppoſition, created A. Cornelius Coſſus dictator, for which the war with the Volſci afforded them a fair pretence. Manlius, however, ſtill continued to inflame the people againſt the patricians. Beſides the moſt unbounded perſonal generoſity, he held aſſemblies at his own houſe (in the citadel), where he confidently gave out that the ſenators, not content with being the poſſeſſors of thoſe lands which ought to have been equally divided among all the citizens, had concealed, with an intent to appropriate it to their own uſe, all the gold which was to have been paid to the Gauls, and which would alone be ſufficient to diſcharge the debts of all the poor plebeians; and he moreover promiſed to ſhow in due time where this treaſure was concealed. For this aſſertion he was brought before the dictator; who commanded him to diſcover where the pretended treaſure was, or to confeſs openly before the whole aſſembly that he had ſlandered the ſenate.—Manlius replied, that the dictator himſelf, and the principal perſons in the ſenate, could only give the proper intelligence of this treaſure, as they had been the moſt active in ſecuring it. Upon this he was committed to priſon; but the people made ſuch diſturbance, that the ſenate were ſoon after fain to releaſe him. By this he was emboldened to continue his former practices; till at laſt the ſenate gave an order to the military tribunes to take care that the commonwealth ſuffered no detriment from the pernicious projects of Marcus Manlius, and even gave them authority to aſſaſſinate him, if they found it neceſſary ſo to do. At laſt, however, he was publicly accuſed of aſpiring to be king; however, the people, it is ſaid, were ſo ſtruck with gratitude, on account of his having delivered the capitol from the Gauls, that they could not reſolve to condemn him. But the military tribunes, who, it ſeems, were bent on his deſtruction, having appointed the aſſembly to be held without the city, there obtained their wiſh. Manlius was thrown headlong from the capitol itſelf: it was thenceforth decreed that no patrician ſhould dwell in the capitol or citadel; and the Manlian family reſolved that no member of it ſhould ever afterwards bear the prænomen of *Marcus*. No ſooner was Manlius dead, however, than the people lamented his fate; and becauſe a plague broke out ſoon after, they imputed it to the anger of the gods on account of the deſtruction of the hero who had ſaved the ſtate (A).

151 Who is condemned and executed.

The Romans, having now triumphed over the Sabines, the Etrurians, the Latins, the Hernici, the Æqui, and the Volſcians, began to look for greater conqueſts. They accordingly turned their arms againſt the Samnites, a people about 100 miles eaſt from the city, deſcended from the Sabines, and inhabiting a large tract of ſouthern Italy, which at this day makes a conſiderable part of the kingdom of Naples. Valerius Corvus and Cornelius were the two conſuls, to whoſe care it firſt fell to manage this dreadful contention between the rival ſtates.

152 War with the Samnites.

Valerius was one of the greateſt commanders of his time; he was ſurnamed Corvus, from a ſtrange circumſtance of being aſſiſted by a crow in a ſingle combat, in which he fought and killed a Gaul of a gigantic ſtature. To his colleague's care it was conſigned to lead an army to Samnium, the enemy's capital; while Corvus was ſent to relieve Capua, the capital of the Cam-

(A) The above accounts are exactly conformable to what is to be found in the beſt Latin hiſtorians; nevertheleſs they are far from being reckoned univerſally authentic. Mr Hooke, in his annotations on the death of M. Manlius, has given very ſtrong reaſons againſt believing either that Camillus reſcued the gold from the Gauls, or that Manlius was condemned. See *Hooke's Roman Hiſtory*, Vol. II. p. 326, *et ſeq.*

Rome. Campania. The Samnites were the braveſt men the Romans had ever yet encountered, and the contention between the two nations was managed on both ſides with the moſt determined reſolution. But the fortune of Rome prevailed; the Samnites at length fled, averring, that they were not able to withſtand the fierce looks and the fire-darting eyes of the Romans. The other conſul, however, was not at firſt ſo fortunate; for having unwarily led his army into a defile, he was in danger of being cut off, had not Decius, a tribune of the army, poſſeſſed himſelf of an hill which commanded the enemy: ſo that the Samnites, being attacked on either ſide, were defeated with great ſlaughter, no leſs than 30,000 of them being left dead upon the field of battle.

Some time after this victory, the ſoldiers who were ſtationed at Capua mutinying, forced Quintius, an old and eminent ſoldier, who was then reſiding in the country, to be their leader; and, conducted by their rage more than their general, came within eight miles of the city. So terrible an enemy, almoſt at the gates, not a little alarmed the ſenate; who immediately created Valerius Corvus dictator, and ſent him forth with another army to oppoſe them. The two armies were now drawn up againſt each other, while fathers and ſons beheld themſelves prepared to engage in oppoſite cauſes; but Corvus, knowing his influence among the ſoldiery, inſtead of going forward to meet the mutineers in an hoſtile manner, went with the moſt cordial friendſhip to embrace and expoſtulate with his old acquaintances. His conduct had the deſired effect. Quintius, as their ſpeaker, only deſired to have their defection from their duty forgiven; and as for himſelf, as he was innocent of their conſpiracy, he had no reaſon to ſolicit pardon for his offences.

A war between the Romans and the Latins followed ſoon after; but as their habits, arms, and language, were the ſame, the moſt exact diſcipline was neceſſary to prevent confuſion in the engagement. Orders, therefore, were iſſued by Manlius the conſul, that no ſoldier ſhould leave his ranks upon whatever provocation; and that he ſhould be certainly put to death who ſhould offer to do otherwiſe. With theſe injunctions, both armies were drawn out in array, and ready to begin; when Metius, the general of the enemy's cavalry, puſhed forward from his lines, and challenged any knight in the Roman army to ſingle combat. For ſome time there was a general pauſe, no ſoldier offering to diſobey his orders, till Titus Manlius, the conſul's own ſon, burning with ſhame to ſee the whole body of the Romans intimidated, boldly ſallied out againſt his adverſary. The ſoldiers on both ſides for a while ſuſpended the general engagement to be ſpectators of this fierce encounter. Manlius killed his adverſary; and then deſpoiling him of his armour, returned in triumph to his father's tent, where he was preparing and giving orders relative to the engagement. Howſoever he might have been applauded by his fellow-ſoldiers, being as yet doubtful of the reception he ſhould find from his father, he came, with heſitation, to lay the enemy's ſpoils at his feet, and with a modeſt air inſinuated, that what he did was entirely from a ſpirit of hereditary virtue. But he was ſoon dreadfully made ſenſible of his error, when his father, turning away, ordered him to be led publicly forth before the army, and there to have his head ſtruck off on account of his diſobeying orders. The whole army was ſtruck with horror at this unnatural mandate: fear for a while kept them in ſuſpenſe; but when they ſaw their young champion's head ſtruck off, and his blood ſtreaming upon the ground, they could no longer contain their execrations and their groans. His dead body was carried forth without the camp, and being adorned with the ſpoils of the vanquiſhed enemy, was buried with all the pomp of military diſtreſs.

In the mean time, the battle joined with mutual fury; and as the two armies had often fought under the ſame leaders, they combated with all the animoſity of a civil war. The Latins chiefly depended on their bodily ſtrength; the Romans, on their invincible courage and conduct. Forces ſo nearly matched ſeemed only to require the protection of their deities to turn the ſcale of victory; and, in fact, the augurs had foretold, that whatever part of the Roman army ſhould be diſtreſſed, the commander of that part ſhould devote himſelf for his country, and die as a ſacrifice to the immortal gods. Manlius commanded the right wing, and Decius led on the left. Both ſides fought for ſome time with doubtful ſucceſs, as their courage was equal; but, after a time, the left wing of the Roman army began to give ground. It was then that Decius, who commanded there, reſolved to devote himſelf for his country, and to offer his own life as an atonement to ſave his army. Thus determined, he called out to Manlius with a loud voice, and demanded his inſtructions, as he was the chief pontiff, how to devote himſelf, and the form of the words he ſhould uſe. By his directions, therefore, being clothed in a long robe, his head covered, and his arms ſtretched forward, ſtanding upon a javelin, he devoted himſelf to the celeſtial and infernal gods for the ſafety of Rome. Then arming himſelf, and mounting on horſeback, he drove furiouſly into the midſt of the enemy, carrying terror and conſternation wherever he came, till he fell covered with wounds. In the mean time, the Roman army conſidered his devoting himſelf in this manner as an aſſurance of ſucceſs; nor was the ſuperſtition of the Latins leſs powerfully influenced by his reſolution; a total rout began to enſue: the Romans preſſed them on every ſide; and ſo great was the carnage, that ſcarce a fourth part of the enemy ſurvived the defeat. This was the laſt battle of any conſequence that the Latins had with the Romans: they were forced to beg a peace upon hard conditions; and two years after, their ſtrongeſt city, Pædum, being taken, they were brought under an entire ſubmiſſion to the Roman power.

A ſignal diſgrace which the Romans ſuſtained about this time in their conteſt with the Samnites, made a pauſe in their uſual good fortune, and turned the ſcale for a while in the enemy's favour. The ſenate having denied the Samnites peace, Pontius their general was reſolved to gain by ſtratagem what he had frequently loſt by force. Accordingly, leading his army into a defile called *Claudium*, and taking poſſeſſion of all its outlets, he ſent 10 of his ſoldiers, habited like ſhepherds, with directions to throw themſelves in the way the Romans were to march. The Roman conſul met them, and taking them for what they appeared, demanded the route the Samnite army had taken; they, with ſeeming indifference, replied, that they were gone to Luceria, a

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town in Apulia, and were then actually besieging it. The Roman general, not suspecting the stratagem that was laid against him, marched directly by the shortest road, which lay through the defiles, to relieve the city; and was not undeceived till he saw his army surrounded, and blocked up on every side. Pontius thus having the Romans entirely in his power, first obliged the army to pass under the yoke, having been previously stripped of all but their garments; he then stipulated that they should wholly quit the territories of the Samnites, and that they should continue to live upon terms of former confederacy. The Romans were constrained to submit to this ignominious treaty, and marched into Capua disarmed and half naked. When the army arrived at Rome, the whole city was most surprisingly afflicted at their shameful return; nothing but grief and resentment was to be seen, and the whole city was put into mourning.

But this was a transitory calamity: the war was carried on as usual for many years; the power of the Samnites declining every day, while that of the Romans continually increased. Under the conduct of Papirius Cursor, who was at different times consul and dictator, repeated triumphs were gained. Fabius Maximus also had his share in the glory of conquering them; and Decius, the son of that Decius whom we saw devoting himself for his country about 40 years before, followed the example of his father, and rushed into the midst of the enemy, imagining that he could save the lives of his countrymen with the loss of his own.

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The success of the Romans against the Samnites alarmed all Italy. The Tarentines in particular, who had long plotted underhand against the republic, now openly declared themselves; and invited into Italy Pyrrhus king of Epirus, in hopes of being able by his means to subdue the Romans. The offer was readily accepted by that ambitious monarch, who had nothing less in view than the conquest of all Italy.—Their ambassadors carried magnificent presents for the king, with instructions to acquaint him, that they only wanted a general of fame and experience; and that, as for troops, they could themselves furnish a numerous army of 20,000 horse and 350,000 foot, made up of Lucanians, Messapians, Samnites, and Tarentines. As soon as the news of this deputation were brought to the Roman camp, Æmilius, who had hitherto made war on the Tarentines but gently, in hopes of adjusting matters by way of negociation, took other measures, and began to commit all sorts of hostilities. He took cities, stormed castles, and laid the whole country waste, burning and destroying all before him. The Tarentines brought their army into the field; but Æmilius soon obliged them to take refuge within their walls. However, to induce them to lay aside the design of receiving Pyrrhus, he used the prisoners he had taken with great moderation, and even sent them back without ransom. These highly extolled the generosity of the consul, insomuch that many of the inhabitants were brought over to the Roman party, and they all began to repent of their having rejected a peace and sent for Pyrrhus.

But, in the mean time, the Tarentine ambassadors arriving in Epirus, pursuant to the powers they had received, made an absolute treaty with the king; who immediately sent before him the famous Cyneas, with 3000 men, to take possession of the citadel of Tarentum. This eloquent minister soon found means to depose Agis, whom the Tarentines had chosen to be their general and the governor of the city, though a sincere friend to the Romans. He likewise prevailed upon the Tarentines to deliver up the citadel into his hands; which he no sooner got possession of, than he dispatched messengers to Pyrrhus, soliciting him to hasten his departure for Italy. In the mean time, the consul Æmilius, finding that he could not attempt any thing with success against the Tarentines this campaign, resolved to put his troops into winter quarters in Apulia, which was not far from the territory of Tarentum, that was soon to become the seat of the war. As he was obliged to pass through certain defiles, with the sea on one side and high hills on the other, he was there attacked by the Tarentines and Epirots from great numbers of barks fraught with baliſtæ (that is, engines for throwing stones of a vast weight), and from the hills, on which were posted a great many archers and slingers. Hereupon Æmilius placed the Tarentine prisoners between him and the enemy; which the Tarentines perceiving, soon left off molesting the Romans, out of compassion to their own countrymen; so that the Romans arrived safe in Apulia, and there took up their winter-quarters.

The next year Æmilius was continued in the command of his own troops, with the title of *proconsul*; and was ordered to make war upon the Salentines, who had declared for the Tarentines. The present exigence of affairs obliged the Romans to enlist the proletarii, who were the meanest of the people, and therefore by way of contempt called *proletarii*, as being thought incapable of doing the state any other service than that of peopling the city, and stocking the republic with subjects. Hitherto they had never been suffered to bear arms; but were now, to their great satisfaction, enrolled as well as others. In the mean time Pyrrhus arrived at Tarentum, having narrowly escaped shipwreck; and being conducted into the city by his faithful Cyneas, was received there with loud acclamations.

156 Pyrrhus obliges the Tarentines to learn the art of war.

The Tarentines, who were entirely devoted to their pleasures, expected that he should take all the fatigues of the war on himself, and expose only his Epirots to danger. And indeed Pyrrhus for some days dissembled his design, and suffered the Tarentines to indulge without restraint in their usual diversions. But his ships, which had been dispersed all over the Ionian sea, arriving one after another, and with them the troops which he had put on board at Epirus, he began to reform the disorders that prevailed in the city. The theatre was the place to which the idle Tarentines resorted daily in great numbers, and where the incendiaries stirred up the people to sedition with their harangues: he therefore caused it to be shut up, as he did likewise the public gardens, porticoes, and places of exercise, where the inhabitants used to entertain themselves with news, and speak with great freedom of their governors, censuring their conduct, and settling the government according to their different humours, which occasioned great divisions, and rent the city into various factions. As they were a very voluptuous and indolent people, they spent whole days and nights in feasts, masquerades, plays, &c. These therefore Pyrrhus absolutely

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solutely prohibited, as no less dangerous than the assemblies of prating politicians. They were utter strangers to military exercises, and the art of handling arms; but Pyrrhus having caused an exact register to be made of all the young men who were fit for war, picked out the strongest amongst them, and incorporated them among his own troops, saying, that he would take it upon himself to give them courage. He exercised them daily for several hours; and on that occasion behaved with an inexorable severity, inflicting exemplary punishment on such as did not attend or failed in their duty. By these wise measures he prevented seditions among the citizens, and inured their youth to military discipline; and because many, who had not been accustomed to such severity and rigour, withdrew from their native country, Pyrrhus, by a public proclamation, declared all those capitally guilty who should attempt to abandon their country, or absent themselves from the common musters.

The Tarentines, being now sensible that Pyrrhus was determined to be their master, began loudly to complain of his conduct; but he, being informed of whatever passed among them by his spies, who insinuated themselves into all companies, privately dispatched the most factious, and sent those whom he suspected, under various pretences, to his son's court in Epirus.

In the mean time, P. Valerius Lævinus, the Roman consul, entering the country of the Lucanians, who were in alliance with the Tarentines, committed great ravages there; and having taken and fortified one of their castles, waited in that neighbourhood for Pyrrhus. The king, though he had not yet received any succours from the Samnites, Messapians, and other allies of the Tarentines, thought it highly dishonourable to continue shut up in a city, while the Romans were ravaging the country of his friends. He therefore took the field with the troops he had brought with him from Epirus, some recruits of Tarentum, and a small number of Italians. But before he began hostilities, he wrote a letter to Lævinus, commanding him to disband his army; and on his refusal, immediately marched towards those parts where Lævinus was waiting for him. The Romans were encamped on the hither side of the river Siris; and Pyrrhus appearing on the opposite bank, made it his first business to reconnoitre the enemy's camp in person, and see what appearance they made. With this view he crossed the river, attended by Megacles, one of his officers and chief favourites; and having observed the consul's intrenchments, the manner in which he had posted his advanced guards, and the good order of his camp, he was greatly surprised; and addressing Megacles, "These people (said he) are not such barbarians as we take them to be: let us try them before we condemn them." On his return, he changed his resolution of attacking them; and, shutting himself up in his intrenchments, waited for the arrival of the confederate troops. In the mean time, he posted strong guards along the river, to prevent the enemy from passing it, and continually sent out scouts to discover the designs, and watch the motions of the consul. Some of these being taken by the advanced guards of the Romans, the consul himself led them through his camp, and having shewed them his army, sent them back to the king, telling them, that he had many other troops to show them in due time.

Lævinus being determined to draw the enemy to a battle before Pyrrhus received the reinforcements he expected, having harangued his troops, marched to the banks of the Siris; and there drawing up his infantry in battalia, ordered the cavalry to file off, and march a great way about, in order to find a passage at some place not defended by the enemy. Accordingly, they passed the river without being observed; and falling upon the guards which Pyrrhus had posted on the banks over-against the consular army, gave the infantry an opportunity of crossing the river on bridges which Lævinus had prepared for that purpose. But before they got over, Pyrrhus, hastening from his camp, which was at some distance from the river, hoped to cut the Roman army in pieces while they were disordered with the difficulties of passing the river, and climbing up the steep banks; but the cavalry covering the infantry, and standing between them and the Epirots, gave them time to form themselves on the banks of the river. On the other hand, Pyrrhus drew up his men as fast as they came from the camp, and performed such deeds of valour, that the Romans thought him worthy of the great reputation he had acquired.

Rom

15 His first battle with the Romans.

As the cavalry alone had hitherto engaged, Pyrrhus, who confided most in his infantry, hastened back to the camp, in order to bring them to the charge; but took two precautions before he began the attack: the first was, to ride through the ranks, and show himself to the whole army; for his horse having been killed under him in the first onset, a report had been spread that he was slain: the second was, to change his habit and helmet with Megacles; for having been known in the engagement of the horse by the richness of his attire and armour, many of the Romans had aimed at him in particular, so that he was with the utmost difficulty taken and saved, after his horse had been killed under him. Thus disguised, he led his phalanx against the Roman legions, and attacked them with incredible fury. Lævinus sustained the shock with great resolution, so that the victory was for many hours warmly disputed. The Romans gave several times way to the Epirots, and the Epirots to the Romans; but both parties rallied again, and were brought back to the charge by their commanders. Megacles, in the attire and helmet of Pyrrhus, was in all places, and well supported the character he had assumed. But his disguise at last proved fatal to him: for a Roman knight, by name *Dexter*, taking him for the king, followed him wherever he went; and having found an opportunity of discharging a blow at him, struck him dead on the spot, stripped him of his helmet and armour, and carried them in triumph to the consul, who, by showing to the Epirots the spoils of their king, so terrified them, that they began to give ground. But Pyrrhus, appearing bare-headed in the first files of his phalanx, and riding through all the lines, undeceived his men, and inspired them with new courage.

The advantage seemed to be pretty equal on both sides, when Lævinus ordered his cavalry to advance; which Pyrrhus observing, drew up 20 elephants in the front of his army, with towers on their backs full of bowmen. The very sight of those dreadful animals chilled the bravery of the Romans, who had never before seen any. However, they still advanced, till their horses, not being able to bear the smell of them, and frightened

frightened at the ſtrange noiſe they made, either threw their riders, or carried them on full ſpeed in ſpite of their utmoſt efforts. In the mean time, the archers, diſcharging ſhowers of darts from the towers, wounded ſeveral of the Romans in that confuſion, while others were trod to death by the elephants. Notwithſtanding the diſorder of the cavalry, the legionaries ſtill kept their ranks, and could not be broken, till Pyrrhus attacked them in perſon at the head of the Theſſalian horſe. The onſet was ſo furious, that they were forced to yield, and retire in diſorder. The king of Epirus reſtrained the ardour of his troops, and would not ſuffer them to purſue the enemy. An elephant, which had been wounded by a Roman ſoldier named *Minucius*, having cauſed a great diſorder in his army, this accident favoured the retreat of the Romans, and gave them time to repaſs the river, and take refuge in Apulia. The Epirot remained maſter of the field, and had the pleaſure to ſee the Romans fly before him: but the victory coſt him dear, a great number of his beſt officers and ſoldiers having been ſlain in the battle; whence he was heard to ſay after the action, that he was both conqueror and conquered, and that if he gained ſuch another victory, he ſhould be obliged to return to Epirus alone.

His firſt care after the action was to bury the dead, with which the plain was covered; and herein he made no diſtinction between the Romans and his own Epirots. In viewing the bodies of the former, he obſerved, that none of them had received diſhonourable wounds; that they had all fallen in the poſts aſſigned them, ſtill held their ſwords in their hands, and ſhowed, even after death, a certain martial air and fierceneſs in their faces; and on this occaſion it was that he uttered thoſe famous words: "O that Pyrrhus had the Romans for his ſoldiers, or the Romans Pyrrhus for their leader! together, we ſhould ſubdue the whole world."

159 The king of Epirus underſtood the art of war too well not to reap what advantage he could from his victory. He broke into the countries in alliance with the Romans, plundered the lands of the republic, and made incurſions even into the neighbourhood of Rome. Many cities opened their gates to him, and in a ſhort time he made himſelf maſter of the greateſt part of Campania. While he was in that fruitful province, ſubſiſting his troops there at the expence of the Romans, he was joined by the Samnites, Lucanians, and Meſſapians, whom he had ſo long expected. After having reproached them for their delay, he gave them a good ſhare of the ſpoils he had taken from the enemy; and having by this means gained their affections, he marched without loſs of time to lay ſiege to Capua: but Lævinus, having already received a reinforcement of two legions, threw ſome troops into the city; which obliged Pyrrhus to drop his deſign, and, leaving Capua, to march ſtraight to Naples. Lævinus followed him, haraſſing his troops on their march; and at length, by keeping his army in the neighbourhood, forced him to give over all thoughts of making himſelf maſter of that important city. The king then, all on a ſudden, took his route towards Rome by the Latin way, ſurpriſed Fregellæ, and, marching through the country of the Hernici, ſat down before Prænette. There, from the top of an hill, he had the pleaſure of ſeeing Rome; and is ſaid to have advanced ſo near the walls, that he drove a cloud of duſt into the city. But he was ſoon forced to retire by the other conſul T. Coruncanius, who, having reduced Hetruria, was juſt then returned with his victorious army to Rome. The king of Epirus, therefore, having no hopes of bringing the Hetrurians into his intereſt, and ſeeing two conſular armies ready to fall upon him, raiſed the ſiege of Prænette, and haſtened back into Campania; where, to his great ſurprize, he found Lævinus with a more numerous army than that which he had defeated on the banks of the Siris. The conſul went to meet him, with a deſign to try the fate of another battle; which Pyrrhus being unwilling to decline, drew up his army, and, to ſtrike terror into the Roman legions, ordered his men to beat their bucklers with their lances, and the leaders of the elephants to force them to make a hideous noiſe. But the noiſe was returned with ſuch an univerſal ſhout by the Romans, that Pyrrhus, thinking ſo much alacrity on the part of the vanquiſhed too ſure a prognoſtic of victory, altered his mind; and, pretending that the auguries were not favourable, retired to Tarentum, and put an end to the campaign.

160 He inclines to peace. While Pyrrhus continued quiet at Tarentum, he had time to reflect on the valour and conduct of the Romans; which made him conclude, that the war in which he was engaged muſt end in his ruin and diſgrace, if not terminated by an advantageous peace. He was therefore overjoyed when he heard that the ſenate had determined to ſend an honourable embaſſy to him, not doubting but their errand was to propoſe terms of peace. The ambaſſadors were three men of diſtinguiſhed merit; to wit, Cornelius Dolabella, who was famous for the ſignal victory he had gained over the Senones, Fabricius, and Æmilius Pappus, who had been his colleague in the conſulate two years before. When they were admitted to an audience, the only thing they demanded was a ſurrender of the priſoners, either by the way of exchange, or at ſuch a ranſom as ſhould be agreed on; for Pyrrhus, in the late battle, had made 1800 priſoners, moſt of them Roman knights and men of diſtinction in the republic. They had fought with great bravery, till their horſes, frightened with the roaring of the king's elephants, had either thrown them, or obliged them to diſmount; by which unforeſeen accident they had fallen into the enemy's hands. The ſenate, therefore, pitying the condition of thoſe brave men, had determined, contrary to their cuſtom, to redeem them. Pyrrhus was greatly ſurpriſed and diſappointed when he found that they had no other propoſals to make; but, concealing his thoughts, he only anſwered, that he would conſider of it, and let them know his reſolution. Accordingly, he aſſembled his council: but his chief favourites were divided in their opinions. Milo, who commanded in the citadel of Tarentum, was for coming to no compoſition with the Romans; but Cyneas, who knew his maſter's inclination, propoſed not only ſending back the priſoners without ranſom, but diſpatching an embaſſy to Rome to treat with the ſenate of a laſting peace. His advice was approved, and he himſelf appointed to go on that embaſſy. After theſe reſolutions, the king acquainted the ambaſſadors, that he intended to releaſe the priſoners without ranſom, ſince he had already riches enough, and deſired

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fired nothing of the republic but her friendſhip. Afterwards he had ſeveral conferences with Fabricius, whoſe virtue he had tried with mighty offers of riches and grandeur; but finding him proof againſt all temptations, he reſolved to try whether his intrepidity and courage were equal to his virtue. With this view, he cauſed an elephant to be placed behind a curtain in the hall where he received the Roman ambaſſador. As Fabricius had never ſeen one of thoſe beaſts, the king, taking a turn or two in the hall with him, brought him within the elephant's reach, and then cauſed the curtain to be drawn all on a ſudden, and that monſtrous animal to make his uſual noiſe, and even lay his trunk on Fabricius's head. But the intrepid Roman, without betraying the leaſt fear or concern, "Does the great king (ſaid he, with ſurpriſing calmneſs), who could not ſtagger me with his offers, think to frighten me with the braying of a beaſt?" Pyrrhus, aſtoniſhed at his immoveable conſtancy, invited him to dine with him; and on this occaſion it was, that the converſation turning upon Epicurean philoſophy, Fabricius made that celebrated exclamation, "O that Pyrrhus, both for Rome's ſake and his own, had placed his happineſs in the boaſted indolence of Epicurus."

Every thing Pyrrhus heard or ſaw of the Romans increaſed his earneſtneſs for peace. He ſent for the three ambaſſadors, releaſed 200 of the priſoners without ranſom, and ſuffered the reſt, on their parole, to return to Rome to celebrate the Saturnalia, or feaſts of Saturn, in their own families. Having by this obliging behaviour gained the good-will of the Roman ambaſſadors, he ſent Cyneas to Rome, almoſt at the ſame time that they left Tarentum. The inſtructions he gave this faithful miniſter, were, to bring the Romans to grant theſe three articles: 1. That the Tarentines ſhould be included in the treaty made with the king of Epirus. 2. That the Greek cities in Italy ſhould be ſuffered to enjoy their laws and liberties. 3. That the republic ſhould reſtore to the Samnites, Lucanians, and Bruttians, all the places ſhe had taken from them. Upon theſe conditions, Pyrrhus declared himſelf ready to forbear all further hoſtilities, and conclude a laſting peace. With theſe inſtructions Cyneas ſet out for Rome; where, partly by his eloquence, partly by rich preſents to the ſenators and their wives, he ſoon gained a good number of voices. When he was admitted into the ſenate, he made an harangue worthy of a diſciple of the great Demoſthenes; after which, he read the conditions Pyrrhus propoſed, and, with a great deal of eloquence, endeavouring to ſhow the reaſonableneſs and moderation of his maſter's demands, aſked leave for Pyrrhus to come to Rome to conclude and ſign the treaty. The ſenators were generally inclined to agree to Pyrrhus's terms; but nevertheleſs, as ſeveral ſenators were abſent, the determination of the affair was poſtponed to the next day; when Appius Claudius, the greateſt orator and moſt learned civilian in Rome, old and blind as he was, cauſed himſelf to be carried to the ſenate, where he had not appeared for many years; and there, partly by his eloquence, partly by his authority, ſo prepoſſeſſed the minds of the ſenators againſt the king of Epirus, and the conditions he offered, that, when he had done ſpeaking, the conſcript fathers unanimouſly paſſed a decree, the ſubſtance of which was, That the war with Pyrrhus ſhould be continued; that his ambaſſador ſhould be ſent back that very day; that the king of Epirus ſhould not be permitted to come to Rome; and that they ſhould acquaint his ambaſſador, that Rome would enter into no treaty of peace with his maſter till he had left Italy.

161 The Romans refuſe to treat.

Cyneas, ſurpriſed at the anſwer given him, left Rome the ſame day, and returned to Tarentum, to acquaint the king with the final reſolution of the ſenate. Pyrrhus would have willingly concluded a peace with them upon honourable terms; but, as the conditions they offered were not by any means conſiſtent with the reputation of his arms, he began, without loſs of time, to make all due preparations for the next campaign. On the other hand, the Romans having raiſed to the conſulate P. Sulpicius Saverrio, and P. Decius Mus, diſpatched them both into Apulia, where they found Pyrrhus encamped near a little town called *Aſculum*. There the conſuls, joining their armies, fortified themſelves at the foot of the Apennines, having between them and the enemy a large deep ſtream which divided the plain. Both armies continued a great while on the oppoſite banks, before either ventured to paſs over to attack the other. The Epirots allowed the Romans to croſs the ſtream, and draw up on the plain. On the other hand, Pyrrhus placed his men likewiſe in order of battle in the ſame plain; and all the ancients do him the juſtice to ſay, that no commander ever underſtood better the art of drawing up an army and directing its motions. In the right wing he placed his Epirots and the Samnites; in his left the Lucanians, Bruttians and Salentines; and his phalanx in the centre. The centre of the Roman army conſiſted of four legions, which were to engage the enemy's phalanx; on their wings were poſted the light-armed auxiliaries and the Roman horſe. The conſuls, in order to guard their troops againſt the fury of the elephants had prepared chariots, armed with long points of iron in the ſhape of forks, and filled with ſoldiers carrying firebrands, which they were directed to throw at the elephants, and by that means frighten them, and ſet their wooden towers on fire. Theſe chariots were poſted over-againſt the king's elephants, and ordered not to ſtir till they entered upon action. To this precaution the Roman generals added another, which was, to direct a body of Apulians to attack Pyrrhus's camp in the heat of the engagement, in order to force it, or at leaſt to draw off part of the enemy's troops to defend it. At length the attack began, both parties being pretty equal in number; for each of them conſiſted of about 40,000 men. The phalanx ſuſtained, for a long time, the furious onſet of the legions with incredible bravery: but at length being forced to give way, Pyrrhus commanded his elephants to advance, but not on the ſide where the Romans had poſted their chariots; they marched round, and, falling upon the Roman horſe, ſoon put them into confuſion. Then the phalanx, returning with freſh courage to the charge, made the Roman legions in their turn give ground. On this occaſion Decius was killed, ſo that one conſul only was left to command the two Roman armies. But while all things ſeemed to favour Pyrrhus, the body of Apulians which we have mentioned above, falling unexpectedly on the camp of the Epirots, obliged the king to diſpatch a ſtrong detachment to defend his intrenchments.

162 Another battle.

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Upon the departure of these troops, some of the Epirots, imagining that the camp was taken, began to lose courage, and retire; those who were next to them followed their example, and in a short time the whole army gave way. Pyrrhus having attempted several times in vain to rally his forces, returned to the charge with a small number of his friends and the most courageous of his officers. With these he sustained the fury of the victorious legions, and covered the retreat of his own men. But being, after a most gallant behaviour, dangerously wounded, he retired at last with his small band in good order, leaving the Romans masters of the field. As the sun was near setting, the Romans, being extremely fatigued, and a great number of them wounded, the consul Sulpicius, not thinking it advisable to pursue the enemy, sounded a retreat, repassed the stream, and brought his troops back to the camp. Sulpicius appeared in the field of battle the next day, with a design to bring the Epirots to a second engagement; but finding they had withdrawn in the night to Tarentum, he likewise retired, and put his troops into winter-quarters in Apulia.

163 Pyrrhus wounded, dangerously wounded.

Both armies continued quiet in their quarters during winter; but early in the spring took the field anew.—The Romans were commanded this year by two men of great fame, whom they had raised to the consulate the second time: these were the celebrated C. Fabricius and Q. Æmilius Pappus; who no sooner arrived in Apulia, than they led their troops into the territory of Tarentum. Pyrrhus, who had received considerable reinforcements from Epirus, met them near the frontiers, and encamped at a small distance from the Roman army. While the consuls were waiting here for a favourable opportunity to give battle, a messenger from Nicias, the king's physician, delivered a letter to Fabricius; wherein the traitor offered to take off his master by poison, provided the consul would promise him a reward proportionable to the greatness of the service. The virtuous Roman, being filled with horror at the bare proposal of such a crime, immediately communicated the affair to his colleague; who readily joined with him in writing a letter to Pyrrhus, wherein they warned him, without discovering the criminal, to take care of himself, and be upon his guard against the treacherous designs of those about him. Pyrrhus, out of a deep sense of gratitude for so great a benefit, released immediately, without ransom, all the prisoners he had taken. But the Romans, disdaining to accept either a favour from an enemy, or a recompense for not committing the blackest treachery, declared, that they would not receive their prisoners but by way of exchange; and accordingly sent to Pyrrhus an equal number of Samnite and Tarentine prisoners.

164 The king's physician offers to poison him, but is discovered by the Romans.

As the king of Epirus grew every day more weary of a war which he feared would end in his disgrace, he sent Cyneas a second time to Rome, to try whether he could, with his artful harangues, prevail upon the conscript fathers to hearken to an accommodation, upon such terms as were consistent with his honour. But the ambassador found the senators steady in their former resolution, and determined not to enter into a treaty with his master till he had left Italy, and withdrawn from thence all his forces. This gave the king great uneasiness; for he had already lost most of his veteran troops and best officers, and was sensible that he should lose the rest if he ventured another engagement. While he was revolving these melancholy thoughts in his mind, ambassadors arrived at his camp from the Syracusians, Agrigentines, and Leontines, imploring the assistance of his arms to drive out the Carthaginians, and put an end to the troubles which threatened their respective states with utter destruction. Pyrrhus, who wanted only some honourable pretence to leave Italy, laid hold of this; and appointing Milo governor of Tarentum, with a strong garrison to keep the inhabitants in awe during his absence, he set sail for Sicily with 30,000 foot and 2500 horse, on board a fleet of 200 ships. Here he was at first attended with great success; but the Sicilians, disgusted at the resolution he had taken of passing over into Africa, and much more at the enormous exactions and extortions of his ministers and courtiers, had submitted partly to the Carthaginians and partly to the Mamertines. When Carthage heard of this change, new troops were raised all over Africa, and a numerous army sent into Sicily to recover the cities which Pyrrhus had taken. As the Sicilians daily deserted from him in crowds, he was no way in a condition, with his Epirots alone, to withstand so powerful an enemy; and therefore, when deputies came to him from the Tarentines, Samnites, Bruttians, and Lucanians, representing to him the losses they had sustained since his departure, and remonstrating, that, without his assistance, they must fall a sacrifice to the Romans, he laid hold of that opportunity to abandon the island, and return to Italy. His fleet was attacked by that of Carthage; and his army, after their landing, by the Mamertines. But Pyrrhus having, by his heroic bravery, escaped all danger, marched along the sea-shore, in order to reach Tarentum that way. As he passed through the country of the Locrians, who had not long before massacred the troops he had left there, he not only exercised all sorts of cruelty on the inhabitants, but plundered the temple of Proserpine to supply the wants of his army. The immense riches which he found there, were, by his order, sent to Tarentum by sea; but the ships that carried them being dashed against the rocks by a tempest, and the mariners all lost, this proud prince was convinced, says Livy, that the gods were not imaginary beings, and caused all the treasure, which the sea had thrown upon the shore, to be carefully gathered up, and replaced in the temple: nay, to appease the wrath of the angry goddess, he put all those to death who had advised him to plunder her temple. However, superstition made the ancients ascribe to this act of impiety all the misfortunes which afterwards befel that unhappy prince.

165 Pyrrhus goes into Sicily.

166 He returns into Italy.

Pyrrhus at length arrived at Tarentum; but of the army he had carried into Sicily, he brought back into Italy only 2000 horse and not quite 20,000 foot. He therefore reinforced them with the best troops he could raise in the countries of the Samnites, Lucanians, and Bruttians; and hearing that the two new consuls, Curius Dentatus and Cornelius Lentulus, had divided their forces, the one invading Lucania and the other Samnium, he likewise divided his army into two bodies, marching with the choice of his Epirots against Dentatus, in hopes of surprising him in his camp near Beneventum. But the consul having notice of his approach, went out of his intrenchments with a strong detachment of legionaries to meet him; repulsed his ad-

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van-guard, put many of the Epirots to the ſword, and took ſome of their elephants. Curius encouraged with this ſucceſs, marched his army into the Tauraſian fields, and drew it up in a plain which was wide enough for his troops, but too narrow for the Epirot phalanx, the phalangites being ſo crowded that they could not handle their arms without difficulty. But the king's eagerneſs to try his ſtrength and ſkill with ſo renowned a commander, made him engage at that great diſadvantage. Upon the firſt ſignal the action began; and one of the king's wings giving way, the victory ſeemed to incline to the Romans. But that wing where the king fought in perſon repulſed the enemy, and drove them back quite to their intrenchments. This advantage was in great part owing to the elephants; which Curius perceiving, commanded a corps de reſerve, which he had poſted near the camp, to advance and fall upon the elephants. Theſe carrying burning torches in one hand, and their ſwords in the other, threw the former at the elephants, and with the latter defended themſelves againſt their guides; by which means they were both forced to give way. The elephants being put to flight broke into the phalanx, cloſe as it was, and there cauſed a general diſorder; which was increaſed by a remarkable accident: for it is ſaid, that a young elephant being wounded, and thereupon making a dreadful noiſe, the mother quitting her rank, and haſtening to the aſſiſtance of her young one, put thoſe who ſtill kept their ranks into the utmoſt confuſion. But, however that be, it is certain that the Romans obtained at laſt a complete victory. Oroſius and Eutropius tell us that Pyrrhus's army conſiſted of 80,000 foot and 6000 horſe, including his Epirots and allies; whereas the conſular army was ſcarce 20,000 ſtrong. Thoſe who exaggerate the king's loſs ſay, that the number of the ſlain on his ſide amounted to 30,000 men; but others reduce it to 20,000. All writers agree, that Curius took 1200 priſoners and eight elephants. This victory, which was the moſt deciſive Rome had ever gained, brought all Italy under ſubjection, and paved the way for thoſe vaſt conqueſts which afterwards made the Romans maſters of the whole known world.

169 Pyrrhus totally defeated by Curius Dentatus.

168 He abandons his times.

Pyrrhus being no way in a condition, after the great loſs he had ſuſtained, to keep the field, retired to Tarentum, attended only by a ſmall body of horſe, leaving the Romans in full poſſeſſion of his camp; which they ſo much admired, that they made it ever after a model to form theirs by. And now the king of Epirus reſolved to leave Italy as ſoon as poſſible; but concealed his deſign, and endeavoured to keep up the drooping ſpirits of his allies, by giving them hopes of ſpeedy ſuccours from Greece. Accordingly he diſpatched ambaſſadors into Ætolia, Illyricum, and Macedon, demanding ſupplies of men and money. But the anſwers from thoſe courts not proving favourable, he forged ſuch as might pleaſe thoſe whom he was willing to deceive; and by this means ſupported the courage of his friends, and kept his enemy in play. When he could conceal his departure no longer, he pretended to be on a ſudden in a great paſſion at the dilatorineſs of his friends in ſending him ſuccours; and acquainted the Tarentines, that he muſt go and bring them over himſelf. However, he left behind him a ſtrong garriſon in the citadel of Tarentum, under the command of the ſame Milo who had kept it for him during his ſtay in Sicily. In order to keep this governor in his duty, he is ſaid to have made him a very ſtrange preſent, *viz.* a chair covered with the ſkin of Nicias, the treacherous phyſician, who had offered Fabricius to poiſon his maſter. After all theſe diſguiſes and precautions, Pyrrhus at laſt ſet ſail for Epirus, and arrived ſafe at Acroceraunium with 8000 foot and 500 horſe; after having ſpent to no purpoſe ſix years in Italy and Sicily.

Though, from the manner in which Pyrrhus took his leave, his Italian allies had little reaſon to expect any further aſſiſtance from him, yet they continued to amuſe themſelves with vain hopes, till certain accounts arrived of his being killed at the ſiege of Argos, as has been related under the article EPIRUS. This threw the Samnites into deſpair: ſo that they put all to the iſſue of a general battle; in which they were defeated with ſuch dreadful ſlaughter, that the nation is ſaid to have been almoſt exterminated. This overthrow was ſoon followed by the ſubmiſſion of the Lucanians, Bruttians, Tarentines, Sarcinates, Picentes, and Salentines; ſo that Rome now became miſtreſs of all the nations from the remoteſt parts of Hetruria to the Ionian ſea, and from the Tyrrhenian ſea to the Adriatic. All theſe nations, however, did not enjoy the ſame privileges. Some were entirely ſubject to the republic, and had no laws but what they received from thence; others retained their old laws and cuſtoms, but in ſubjection to the republic: ſome were tributary; and others allies, who were obliged to furniſh troops at their own expence when the Romans required. Some had the privilege of Roman citizenſhip, their ſoldiers being incorporated in the legions; while others had a right of ſuffrage in the elections made by the centuries. Theſe different degrees of honour, privileges, and liberty, were founded on the different terms granted to the conquered nations when they ſurrendered, and were afterwards increaſed according to their fidelity and the ſervices they did the republic.

169 Who are ſubdued, and the Romans become maſters of all Italy.

The Romans now became reſpected by foreign nations, and received ambaſſadors from Ptolemy Philadelphus king of Egypt, and from Apollonia a city of Macedon. Senſible of their own importance, they now granted protection to whatever nation requeſted it of them; but this not with a view of ſerving one party, but that they might have an opportunity of ſubjecting both. In this manner they aſſiſted the Mamertines againſt Hiero king of Syracuſe, which brought on the wars with the Carthaginians, which terminated in the total deſtruction of that ancient republic, as has been related under the article CARTHAGE. The interval between the firſt and ſecond Punic wars was by the Romans employed in reducing the Boii and Ligurians, who had revolted. Theſe were Gauliſh nations, who had always been very formidable to the Romans, and now gave one of their conſuls a notable defeat. However, he ſoon after ſufficiently revenged himſelf, and defeated the enemy with great ſlaughter; though it was not till ſome time after, and with a good deal of difficulty, that they were totally ſubdued. During this interval alſo, the Romans ſeized on the iſlands of Sardinia, Corſica, and Malta; and in the year 219 B. C. the two former were reduced to the form of a province. Papirius, who had ſubdued Corſica, demanded a triumph; but not having intereſt enough to obtain it, he took a method entirely new to do himſelf juſtice. He put

170 Other conqueſts made by the Romans.

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himself at the head of his victorious army, and marched to the temple of Jupiter Latialis, on the hill of Alba, with all the pomp that attended triumphant victors at Rome. He made no other alteration in the ceremony, but that of wearing a crown of myrtle instead of a crown of laurel, and this on account of his having defeated the Corsicans in a place where there was a grove of myrtles. The example of Papirius was afterwards followed by a great many generals to whom the senate refused triumphs.

171 Illyricum subdued.

The next year, when M. Æmilius Barbula and M. Junius Pera were consuls, a new war sprung up in a kingdom out of Italy. *Illyricum*, properly so called, which bordered upon Macedon and Epirus, was at this time governed by a woman named *Teuta*, the widow of king Agron, and guardian to her son Pinæus, who was under age. The success of her late husband against the Ætolians had flushed her to such a degree, that, instead of settling the affairs of her ward in peace, she commanded her subjects to cruise along the coast, seize all the ships they met, take what places they could, and spare no nation. Her pirates had, pursuant to her orders, taken and plundered many ships belonging to the Roman merchants; and her troops were then besieging the island of Issa in the Adriatic, though the inhabitants had put themselves under the protection of the republic. Upon the complaints therefore of the Italian merchants, and to protect the people of Issa, the senate sent two ambassadors to the Illyrian queen, Lucius and Caius Coruncanus, to demand of her that she would restrain her subjects from infesting the sea with pirates. She answered them haughtily, that she could only promise that her subjects should not for the future attack the Romans in her name, and by public authority: "but as for any thing more, it is not customary with us (said she) to lay restraints on our subjects, nor will we forbid them to reap those advantages from the sea which it offers them." Your customs then (replied the youngest of the ambassadors) are very different from ours. At Rome we make public examples of those subjects who injure others, whether at home or abroad. Teuta, we can, by our arms, force you to reform the abuses of your bad government." These unseasonable threatenings provoked Teuta, who was naturally a proud and imperious woman, to such a degree, that, without regard to the right of nations, she caused the ambassadors to be murdered on their return home.

When so notorious an infraction of the law of nations was known at Rome, the people demanded vengeance; and the senate having first honoured the manes of the ambassadors, by erecting, as was usual in such cases, statues three feet high to their memory, ordered a fleet to be equipped, and troops raised, with all possible expedition. But now Teuta, reflecting on the enormity of her proceedings, sent an embassy to Rome, assuring the senate that she had no hand in the murder of the ambassadors, and offering to deliver up to the republic those who had committed that barbarous assassination. The Romans being at that time threatened with a war from the Gauls, were ready to accept this satisfaction: but in the mean time the Illyrian fleet having gained some advantage over that of the Achæans, and taken the island of Corcyra near Epirus, this success made Teuta believe herself invincible, and forget the promise she had made to the Romans; nay, she sent her fleet to seize on the island of Issa, which the Romans had taken under their protection.

Hereupon the consuls for the new year, P. Posthumius Albinus and Cn. Fulvius Centumalus, embarked for Illyricum; Fulvius having the command of the fleet, which consisted of 100 galleys; and Posthumius of the land forces, which amounted to 20,000 foot, besides a small body of horse. Fulvius appeared with his fleet before Corcyra in the Adriatic, and was put in possession both of the island and city by Demetrius of Pharos, governor of the place for Queen Teuta. Nor was this all; Demetrius found means to make the inhabitants of Apollonia drive out the Illyrian garrison, and admit into their city the Roman troops. As Apollonia was one of the keys of Illyricum on the side of Macedon, the consuls, who had hitherto acted jointly, no sooner saw themselves in possession of it than they separated, the fleet cruising along the coast, and the army penetrating into the heart of the queen's dominions. The Andyœans, Parthini, and Atintanes, voluntarily submitted to Posthumius, being induced by the persuasions of Demetrius to shake off the Illyrian yoke. The consul being now in possession of most of the inland towns, returned to the coast, where, with the assistance of the fleet, he took many strong-holds, among which was Nutria, a place of great strength, and defended by a numerous garrison; so that it made a vigorous defence, the Romans having lost before it a great many private men, several legionary tribunes, and one quæstor. However, this loss was repaired by the taking of 40 Illyrian vessels, which were returning home laden with booty. At length the Roman fleet appeared before Issa, which, by Teuta's order, was still closely besieged, notwithstanding the losses she had sustained. However, upon the approach of the Roman fleet, the Illyrians dispersed; but the Pharians, who served among them, followed the example of their countryman Demetrius, and joined the Romans, to whom the Issani readily submitted.

In the mean time Sp. Corvilius and Q. Fabius Maximus being raised to the consulate a second time, Posthumius was recalled from Illyricum, and refused a triumph for having been too prodigal of the Roman blood at the siege of Nutria. His colleague Fulvius was appointed to command the land forces in his room, in quality of proconsul. Hereupon Teuta, who had founded great hopes on the change of the consuls, retired to one of her strong-holds called *Rhizon*, and from thence early in the spring sent an embassy to Rome. The senate refused to treat with her; but granted the young king a peace upon the following conditions: 1. That he should pay an annual tribute to the republic. 2. That he should surrender part of his dominions to the Romans. 3. That he should never suffer above three of his ships of war at a time to sail beyond Lyssus, a town on the confines of Macedon and Illyricum. The places he yielded to the Romans in virtue of this treaty, were the islands of Corcyra, Issa, and Pharos, the city of Dyrrhachium, and the country of the Atintanes. Soon after Teuta, either out of shame, or compelled by a secret article of the treaty, abdicated the regency, and Demetrius succeeded her.

172 The Gauls of Insubria and Liguria subdued.

Before this war was ended, the Romans were alarmed by new motions of the Gauls, and the great progress which the Carthaginians made in Spain. At this time also

also the fears of the people were excited by a prophecy said to be taken out of the Sybilline books, that the Gauls and Greeks should one day be in possession of Rome. This prophecy, however, the senate found means to elude, as they pretended, by burying two Gauls and two Greeks alive, and then telling the multitude that the Gauls and Greeks were now in the possession of Rome. The difficulties which superstition had raised being thus surmounted, the Romans made vast preparations against the Gauls, whom they seem to have dreaded above all other nations. Some say that the number of forces raised by the Romans on this occasion amounted to no fewer than 800,000 men. Of this incredible multitude 248,000 foot and 26,000 horse were Romans or Campanians; nevertheless, the Gauls, with only 50,000 foot and 20,000 horse, forced a passage through Hetruria, and took the road towards Rome. Here they had the good fortune at first to defeat one of the Roman armies; but being soon after met by two others, they were utterly defeated, with the loss of more than 50,000 of their number. The Romans then entered their country, which they cruelly ravaged; but a plague breaking out in their army, obliged them to return home. This was followed by a new war, in which those Gauls who inhabited Insubria and Liguria were totally subdued, and their country reduced to a Roman province. These conquests were followed by that of Istria; Dimalum, a city of importance in Illyricum; and Pharos, an island in the Adriatic sea.

The second Punic war for some time retarded the conquests of the Romans, and even threatened their state with entire destruction; but Hannibal being at last recalled from Italy, and entirely defeated at Zama, they made peace upon such advantageous terms as gave them an entire superiority over that republic, which they not long after entirely subverted, as has been related in the history of CARTHAGE.

173 The Roman empire arrives at its full extent.

The successful issue of the second Punic war had greatly increased the extent of the Roman empire. They were now masters of all Sicily, the Mediterranean islands, and great part of Spain; and, through the dissensions of the Asiatic states with the king of Macedon, a pretence was now found for carrying their arms into these parts. The Gauls in the mean time, however, continued their incursions, but now ceased to be formidable; while the kings of Macedon, through misconduct, were first obliged to submit to a disadvantageous peace, and at last totally subdued (see MACEDON). The reduction of Macedon was soon followed by that of all Greece, either by the name of allies or otherwise: while Antiochus the Great, to whom Hannibal fled for protection, by an unsuccessful war first gave the Romans a footing in Asia (see SYRIA). The Spaniards and Gauls continued to be the most obstinate enemies. The former, particularly, were rather exterminated than reduced; and even this required the utmost care and vigilance of Scipio Æmilianus, the conqueror of Carthage, to execute. See SPAIN and NUMANTIA.

Thus the Romans attained to a height of power superior to any other nation in the world; but now a sedition broke out, which we may say was never terminated but with the overthrow of the republic. This had its origin from Tiberius Sempronius Gracchus, descended from a family which, though plebeian, was as illustrious as any in the commonwealth. His father had been twice raised to the consulate, was a great general, and had been honoured with two triumphs. But he was still more renowned for his domestic virtues and probity, than for his birth or valour. He married the daughter of the first Africanus, said to be the pattern of her sex, and the prodigy of her age; and had by her several children, of whom three only arrived to maturity of age, Tiberius Gracchus, Caius Gracchus, and a daughter named *Sempronia*, who was married to the second Africanus. Tiberius, the eldest, was deemed the most accomplished youth in Rome, with respect to the qualities both of body and mind. His extraordinary talents were heightened by a noble air, an engaging countenance, and all those winning graces of nature which recommend merit. He made his first campaigns under his brother-in-law, and distinguished himself on all occasions by his courage, and by the prudence of his conduct. When he returned to Rome, he applied himself to the study of eloquence; and at 30 years old was accounted the best orator of his age. He married the daughter of Appius Claudius, who had been formerly consul and censor, and was then prince of the senate. He continued for some time in the sentiments both of his own and his wife's family, and supported the interests of the patricians; but without openly attacking the popular faction. He was the chief author and negociator of that shameful necessary peace with the Numantines; which the senate, with the utmost injustice, disannulled, and condemned the consul, the quæstor, and all the officers who had signed it, to be delivered up to the Numantines (see NUMANTIA). The people indeed, out of esteem for Gracchus, would not suffer him to be sacrificed: but, however, he had just reason to complain, both of the senate and people, for passing so scandalous a decree against his general and himself, and breaking a treaty whereby the lives of so many citizens had been saved. But as the senate had chiefly promoted such base and iniquitous proceedings, he resolved in due time to show his resentment against the party which had contributed most to his disgrace.

174 Sedition of the Gracchi.

In order to this, he stood for the tribuneship of the people; which he no sooner obtained, than he resolved to attack the nobility in the most tender part. They had usurped lands unjustly; cultivated them by slaves, to the great detriment of the public; and had lived for about 250 years in open defiance to the Licinian law, by which it was enacted that no citizen should possess more than 500 acres. This law Tib. Gracchus resolved to revive, and by that means revenge himself on the patricians. But it was not revenge alone which prompted him to embark in so dangerous an attempt. It is pretended, that his mother Cornelia animated him to undertake something worthy both of his and her family. The reproaches of his mother, the authority of some great men, namely of his father-in-law Appius Claudius, of P. Crassus the *pontifex maximus*, and of Mutius Scævola, the most learned civilian in Rome, and his natural thirst after glory, joined with an eager desire of revenge, conspired to draw him into this most unfortunate scheme.

175 A new law proposed by Gracchus.

The law, as he first drew it up, was very mild: for it only enacted, that those who possessed more than 500 acres of land should part with the overplus; and that the

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the full value of the said lands should be paid them out of the public treasury. The lands thus purchased by the public were to be divided among the poor citizens; and cultivated either by themselves or by freemen, who were upon the spot. Tiberius allowed every child of a family to hold 250 acres in his own name, over and above what was allowed to the father. Nothing could be more mild than this new law; since by the Licinian he might have absolutely deprived the rich of the lands they unjustly possessed, and made them accountable for the profits they had received from them during their long possession. But the rich patricians could not so much as bear the name of the *Licinian law*, though thus qualified. Those chiefly of the senatorial and equestrian order exclaimed against it, and were continually mounting the rostra one after another, in order to dissuade the people from accepting a law which, they said, would raise disturbances, that might prove more dangerous than the evils which Tiberius pretended to redress by the promulgation of it. Thus the zealous tribune was obliged day after day to enter the lists with fresh adversaries; but he ever got the better of them both in point of eloquence and argument.

The people were charmed to hear him maintain the cause of the unfortunate with so much success, and bestowed on him the highest commendations. The rich therefore had recourse to violence and calumny, in order to destroy, or at least to discredit, the tribune. It is said they hired assassins to dispatch him; but they could not put their wicked design in execution, Gracchus being always attended to and from the rostra by a guard of about 4000 men. His adversaries therefore endeavoured to ruin his reputation by the blackest calumnies. They gave out that he aimed at monarchy; and published pretended plots laid for crowning him king. But the people, without giving ear to such groundless reports, made it their whole business to encourage their tribune, who was hazarding both his life and reputation for their sakes.

When the day came on which this law was to be accepted or rejected by the people assembled in the comitium, Gracchus began with haranguing the mighty croud which an affair of such importance had brought together both from the city and country. In his speech he showed the justice of the law with so much eloquence, made so moving a description of the miseries of the meaner sort of people, and at the same time set forth in such odious colours the usurpation of the public lands, and the immense riches which the avarice and rapaciousness of the great had raked together, that the people, transported with fury, demanded with loud cries the billets, that they might give their suffrages. Then Gracchus, finding the minds of the citizens in that warmth and emotion which was necessary for the success of his design, ordered the law to be read.

176 Opposed by the tribune Octavius.

But unluckily one of the tribunes, by name *Marcus Octavius Cæcina*, who had always professed a great friendship for Gracchus, having been gained over by the patricians, declared against the proceedings of his friend and colleague; and pronounced the word which had been always awful in the mouth of a tribune of the people, *Veto*, "I forbid it." As Octavius was a man of an unblameable character, and had hitherto been very zealous for the publication of the law, Gracchus was greatly surprised at this unexpected opposition from his friend. However, he kept his temper, and only desired the people to assemble again the next day to hear their two tribunes, one in defence of, the other in opposition to, the law proposed. The people met at the time appointed; when Gracchus addressing himself to his colleague, conjured him by the mutual duties of their function, and by the bonds of their ancient friendship, not to oppose the good of the people, whom they were bound in honour to protect against the usurpation of the great: nay, taking his colleague aside, he addressed him thus, "Perhaps you are personally concerned to oppose this law; if so, I mean, if you have more than the five hundred acres, I myself, poor as I am, engage to pay you in money what you will lose in land." But Octavius, either out of shame, or from a principle of honour, continued immoveable in the party he had embraced.

Gracchus therefore had recourse to another expedient; which was to suspend all the magistrates in Rome from the execution of their offices. It was lawful for any tribune to take this step, when the passing of the law which he proposed was prevented by mere chicanery. After this, he assembled the people anew, and made a second attempt to succeed in his design. When all things were got ready for collecting the suffrages, the rich privately conveyed away the urns in which the tablets were kept. This kindled the tribune's indignation, and the rage of the people. The comitium was like to become a field of battle, when two venerable senators, Manlius and Fulvius, very seasonably interposed; and throwing themselves at the tribune's feet, prevailed upon him to submit his law to the judgment of the conscript fathers. This was making the senators judges in their own cause: but Gracchus thought the law so undeniably just, that he could not persuade himself that they would reject it; and if they did, he knew that the incensed multitude would no longer keep any measures with them.

The senate, who wanted nothing but to gain time, affected delays, and came to no resolution. There were indeed some among them, who, out of a principle of equity, were for paying some regard to the complaints of the tribune, and for sacrificing their own interest to the relief of the distressed. But the far greater part would not hear of any composition whatsoever. Hereupon Gracchus brought the affair anew before the people, and earnestly intreated his colleague Octavius to drop his opposition, in compassion to the many unfortunate people for whom he interceded. He put him in mind of their ancient friendship, took him by the hand, and affectionately embraced him. But still Octavius was inflexible. Hereupon Gracchus resolved to deprive Octavius of his tribuneship, since he alone obstinately withstood the desires of the whole body of so great a people. Having therefore assembled the people, he told them, that since his colleague and he were divided in opinion, and the republic suffered by their division, it was the province of the tribes assembled in comitia to re-establish concord among their tribunes. "If the cause I maintain (said he) be, in your opinion, unjust, I am ready to give up my seat in the college. On the contrary, if you judge me worthy of being continued in your service in this station, deprive him of the tribuneship who alone obstructs my wishes. As soon as you shall have

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nominated one to succeed him, the law will pass without opposition." Having thus spoken, he dismissed the assembly, after having summoned them to meet again the next day.

And now Gracchus, being soured with the opposition he had met with from the rich, and from his obstinate colleague, and being well apprised that the law would pass in any form in which he should think fit to propose it, resolved to revive it as it was at first passed, without abating any thing of its severity. There was no exception in favour of the children in families; or reimbursement promised to those who should part with the lands they possessed above 500 acres. The next day the people being assembled in vast crowds on this extraordinary occasion, Gracchus made fresh applications to Octavius, but to no purpose; he obstinately persisted in his opposition. Then Gracchus turning to the people, "Judge you, (said he), which of us deserves to be deprived of his office." At these words the first tribe voted, and declared for the deposition of Octavius. Upon which Gracchus, suspending the ardour of the tribes, made another effort to bring over his opponent by gentle methods. But all his endeavours proving ineffectual, the other tribes went on to vote in their turns, and followed the example of the first. Of 35 tribes, 17 had already declared against Octavius, and the 18th was just going to determine the affair, when Gracchus, being willing to try once more whether he could reclaim his colleague, suspended the collecting of the suffrages; and addressing Octavius in the most pressing terms, conjured him not to expose himself, by his obstinacy, to so great a disgrace, nor to give him the grief of having cast a blemish upon his colleague and friend, which neither time nor merit would ever wipe off. Octavius, however, continuing obstinate, was deposed, and the law passed as Gracchus had proposed it the last time. The deposed tribune was dragged from the rostra by the incensed multitude, who would have insulted him further, had not the senators and his friends facilitated his escape.

177 Who is deposed, and the law passed.

The Licinian law being thus revived with one consent both by the city and country tribes, Gracchus caused the people to appoint triumvirs, or three commissioners, to hasten its execution. In this commission the people gave Gracchus the first place; and he had interest enough to get his father-in-law Appius Claudius, and his brother Caius Gracchus, appointed his colleagues. These three spent the whole summer in travelling through all the Italian provinces, to examine what lands were held by any person above 500 acres, in order to divide them among the poor citizens. When Gracchus returned from his progress, he found, by the death of his chief agent, that his absence had not abated either the hatred of the rich, or the love of the poor, toward him. As it plainly appeared that the deceased had been poisoned, the tribune took this occasion to apply himself again to his protectors, and implore their assistance against the violence and treachery of his enemies. The populace, more attached after this accident to their hero than ever, declared they would stand by him to the last drop of their blood; and this their zeal encouraged him to add a new clause to the law, viz. that the commissioners should likewise inquire what lands had been usurped from the republic. This was touching the senators in a most tender point; for most of them had appropriated to themselves lands belonging to the republic. But after all, the tribune, upon a strict inquiry, found that the lands taken from the rich would not be enough to content all the poor citizens. But the following accident eased him of this difficulty, and enabled him to stop the murmurs of the malcontents among the people.

178 The treasures of Attalus divided among the people by Gracchus.

Attalus Philometer, king of Pergamus, having bequeathed his dominions and effects to the Romans, Eudemus the Pergamean brought his treasures to Rome at this time; and Gracchus immediately got a new law passed, enacting, that this money should be divided among the poor citizens who could not have lands; and that the disposal of the revenues of Pergamus should not be in the senate, but in the comitia. By these steps Gracchus most effectually humbled the senate; who, in order to discredit him among the people, gave out that Eudemus, who had brought the king's will to Rome, had left with Gracchus the royal diadem and mantle of Attalus, which the law-making tribune was to use when he should be proclaimed king of Rome. But these reports only served to make Gracchus be more upon his guard, and to inspire the people with an implacable hatred against the rich who were the authors of them. Gracchus being now, by his power over the minds of the multitude, absolute master of their suffrages, formed a design of raising his father-in-law Appius Claudius to the consulate next year, of promoting his brother Caius to the tribuneship, and getting himself continued in the same office. The last was what most nearly concerned him; his person, as long as he was in office, being sacred and inviolable. As the senate was very active in endeavouring to get such only elected into the college of tribunes as were enemies to Gracchus and his faction, the tribune left no stone unturned to secure his election. He told the people, that the rich had resolved to assassinate him as soon as he was out of his office; he appeared in mourning, as was the custom in the greatest calamities; and bringing his children, yet young, into the forum, recommended them to the people in such terms, as showed that he despaired of his own preservation. At this sight the populace returned no answer, but by outcries and menaces against the rich.

When the day appointed for the election of new tribunes came, the people were ordered to assemble in the capitol in the great court before the temple of Jupiter. The tribes being met, Gracchus produced his petition, intreating the people to continue him one year longer in the office of tribune, in consideration of the great danger to which he was exposed, the rich having vowed his destruction as soon as his person should be no more sacred. This was indeed an unusual request, it having been long customary not to continue any tribune in his office above a year. However, the tribes began to vote, and the two first declared for Gracchus. Hereupon the rich made great clamours; which terrified Rubrius Varro, who presided in the college of tribunes that day, to such a degree, that he resigned his place to Q. Mummius, who offered to preside in his room. But this raised a tumult among the tribunes themselves; so that Gracchus wisely dismissed the assembly, and ordered them to meet again the next day.

In the mean time the people, being sensible of what importance it was to them to preserve the life of so powerful

powerful a protector, not only conducted him home, but watched by turns all night at his door. Next morning by break of day, Gracchus having assembled his friends, led them from his house, and posted one half of them in the comitium, while he went up himself with the other to the capitol. As soon as he appeared, the people saluted him with loud acclamations of joy. But scarce was he placed in his tribunal, when Fulvius Flaccus a senator, and friend to Gracchus, breaking through the crowd, came up to him, and gave him notice, that the senators, who were assembled in the temple of Faith, which almost touched that of Jupiter Capitolinus, had conspired against his life, and were resolved to attack him openly on his very tribunal. Hereupon Gracchus tucked up his robe, as it were, to prepare for a battle; and, after his example, some of his party, seizing the staves of the apparitors, prepared to defend themselves, and to repel force by force. These preparations terrified the other tribunes; who immediately abandoned their places in a cowardly manner, and mixed with the crowd; while the priests ran to shut the gates of the temple, for fear of its being profaned. On the other hand, the friends of Gracchus, who were dispersed by parties in different places, cried out, *We are ready: What must we do?* Gracchus, whose voice could not be heard by all his adherents on account of the tumult, the clamours, and the confused cries of the different parties, put his hand to his head; which was the signal agreed on to prepare for battle. But some of his enemies, putting a malicious construction upon that gesture, immediately flew to the senate, and told the fathers, that the seditious tribune had called for the crown to be put upon his head. Hereupon the senators, fancying they already saw the king of Pergamus's diadem on the tribune's head, and the royal mantle on his shoulders, resolved to give the consul leave to arm his legions, treat the friends of Gracchus as enemies, and turn the comitium into a field of battle.

But the consul Mutius Scævola, who was a prudent and moderate man, refused to be the instrument of their rash revenge, and to dishonour his consulate with the massacre of a disarmed people. As Calpurnius Piso, the other consul, was then in Sicily, the most turbulent among the senators cried out, "Since one of our consuls is absent, and the other betrays the republic, let us do ourselves justice; let us immediately go and demolish with our own hands this idol of the people." Scipio Nasica, who had been all along for violent measures, inveighed bitterly against the consul for refusing to succour the republic in her greatest distress. Scipio Nasica was the great grandson of Cneius Scipio, the uncle of the first Africanus, and consequently cousin to the Gracchi by their mother Cornelia. But nevertheless not one of the senators betrayed a more irreconcileable hatred against the tribune than he. When the prudent consul refused to arm his legions, and put the adherents of Gracchus to death contrary to the usual forms of justice, he set no bounds to his fury, but, rising up from his place, cried out like a madman, "Since our consul betrays us, let those who love the republic follow me." Having uttered these words, he immediately walked out of the temple, attended by a great number of senators.

Nasica threw his robe over his [illegible], and having covered his head with it, ad[illegible] into the crowd, where he wa[illegible] the clients and friends of the [illegible] med with staves and clubs. These, falling indifferently upon all who stood in their way, dispe[illegible] Many of Gracchus's party took to their heels; and in that tumult all the seats being overturned and broken, Nasica, armed with the leg of a broken bench, knocked down all who opposed him, and at length reached Gracchus. One of his party seized the tribune by the lappet of his robe: but he, quitting his gown, fled in his tunic; and as he was in that hurry of spirits, which is inseparable from fear, leaping over the broken benches, he had the misfortune to slip and fall. As he was getting up again, he received a blow on the head, which stunned him: then his adversaries rushing in upon him, with repeated blows put an end to his life.

Rome. 180 A sedition, in which Gracchus is killed.

Rome was by his death delivered, according to Cicero, from a domestic enemy, who was more formidable to her than even that Numantia, which had first kindled his resentments. Perhaps no man was ever born with greater talents, or more capable of aggrandizing himself, and doing honour to his country. But his great mind, his manly courage, his lively, easy, and powerful eloquence, were, says Cicero, like a sword in the hands of a madman. Gracchus abused them, not in supporting an unjust cause, but in conducting a good one with too much violence. He went so far as to make some believe that he had really something in view besides the interest of the people whom he pretended to relieve; and therefore some historians have represented him as a tyrant. But the most judicious writers clear him from this imputation, and ascribe his first design of reviving the Licinian law to an eager desire of being revenged on the senators for the affront they had very unjustly put upon him, and the consul Mancinus, as we have hinted above. The law he attempted to revive had an air of justice, which gave a sanction to his revenge, without casting any blemish on his reputation.

181 His friends massacred.

The death of Gracchus did not put an end to the tumult. Above 300 of the tribune's friends lost their lives in the fray; and their bodies were thrown, with that of Gracchus, into the Tiber. Nay, the senate carried their revenge beyond the fatal day which had stained the Capitol with Roman blood. They sought for all the friends of the late tribune, and without any form of law assassinated some, and forced others into banishment. Caius Billius, one of the most zealous defenders of the people, was seized by his enemies, and shut up in a cask with snakes and vipers, where he miserably perished. Though the laws prohibited any citizen to take away the life of another before he had been legally condemned, Nasica and his followers were acquitted by the senate, who enacted a decree, justifying all the cruelties committed against Gracchus and his adherents.

182 The disturbances increase.

These disturbances were for a short time interrupted by a revolt of the slaves in Sicily, occasioned by the cruelty of their masters; but they being soon reduced, the contests about the *Sempronian law*, as it was called, again took place. Both parties were determined not to yield; and therefore the most fatal effects ensued. The first thing of consequence was the death of Sci-

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pus Africanus the Second, who was privately ſtrangled in his bed by ſome of the patricians of the plebeian party, about 129 B. C. Caius Gracchus, brother to him who had been formerly killed, not only undertook the revival of the Sempronian law, but propoſed a new one, granting the rights of Roman citizens to all the Italian allies, who could receive no ſhare of the lands divided in conſequence of the Sempronian law. The conſequences of this were much worſe than the former; the flame ſpread through all Italy; and the nations who had made war with the republic in its infancy again commenced enemies more formidable than before. Fregellæ, a city of the Volſci, revolted: but being ſuddenly attacked, was obliged to ſubmit, and was raſed to the ground; which quieted matters for the preſent. Gracchus, however, ſtill continued his attempts to humble the ſenate and the reſt of the patrician body: the ultimate conſequence of which was, that a price was ſet on his head, and that of Fulvius his confederate, no leſs than their weight in gold, to any one who ſhould bring them to Opimius the chief of the patrician party. Thus the cuſtom of proſcription was begun by the patricians, of which they themſelves ſoon had enough. Gracchus and Fulvius were ſacrificed, but the diſorders of the republic were not ſo eaſily cured.

182 The cuſtom of proſcription begun.

The inundation of the Cimbri and Teutones put a ſtop to the civil diſcords for ſome time longer; but they being defeated, as related under the articles Cimbri and Teutones, nothing prevented the troubles from being revived with greater fury than before, except the war with the Sicilian ſlaves, which had again commenced with more dangerous circumſtances than ever. But this war being totally ended about 99 B. C. no farther obſtacle remained. Marius, the conqueror of Jugurtha * and the Cimbri, undertook the cauſe of the plebeians againſt the ſenate and patricians. Having aſſociated himſelf with Apuleius and Glaucia, two factious men, they carried their proceedings to ſuch a length, that an open rebellion commenced, and Marius himſelf was obliged to act againſt his allies. Peace, however, was for the preſent reſtored by the maſſacre of Apuleius and Glaucia, with a great number of their followers; upon which Marius thought proper to leave the city.

* See Numidia.

While factious men thus endeavoured to tear the republic in pieces, the attempts of well-meaning people to heal thoſe diviſions ſerved only to involve the ſtate in calamities ſtill more grievous. The conſuls obſerved, that many individuals of the Italian allies lived at Rome, and falſely pretended to be Roman citizens. By means of them, it was likewiſe perceived, that the plebeian party had acquired a great deal of its power; as the votes of theſe pretended citizens were always at the ſervice of the tribunes. The conſuls therefore got a law paſſed, commanding all thoſe pretended citizens to return home. This was ſo much reſented by the Italian ſtates, that an univerſal defection took place. A ſcheme was then formed by M. Livius Druſus, a tribune of the people, to reconcile all orders of men; but this only made matters worſe, and procured his own aſſaſſination. His death ſeemed a ſignal for war. The Marſi, Peligni, Samnites, Campanians, and Lucanians, and in ſhort all the provinces from the river Liris to the Adriatic, revolted at once, and formed themſelves into a republic, in oppoſition to that of Rome.

183 The ſocial war.

The haughty Romans were now made thoroughly ſenſible that they were not invincible: they were defeated in almoſt every engagement; and muſt ſoon have yielded, had they not fallen upon a method of dividing their enemies. A law was paſſed, enacting, that all the nations in Italy, whoſe alliance with Rome was indiſputable, ſhould enjoy the right of Roman citizens. This drew off ſeveral nations from the alliance; and at the ſame time, Sylla taking upon him the command of the Roman armies, fortune ſoon declared in favour of the latter.

The ſucceſs of Rome againſt the allies ſerved only to bring greater miſeries upon herſelf. Marius and Sylla became rivals; the former adhering to the people, and the latter to the patricians. Marius aſſociated with one of the tribunes named *Sulpitius*; in conjunction with whom he raiſed ſuch diſturbances, that Sylla was forced to retire from the city. Having thus driven off his rival, Marius got himſelf appointed general againſt Mithridates † king of Pontus; but the ſoldiers refuſed to obey any other than Sylla. A civil war immediately enſued, in which Marius was driven out in his turn, and a price ſet upon his head and that of Sulpitius, with many of their adherents. Sulpitius was ſoon ſeized and killed; but Marius made his eſcape. In the mean time, however, the cruelties of Sylla rendered him obnoxious both to the ſenate and people; and Cinna, a furious partiſan of the Marian faction, being choſen conſul, cited him to give an account of his conduct. Upon this Sylla thought proper to ſet out for Aſia: Marius was recalled from Africa, whither he had fled; and immediately on his landing in Italy, was joined by a great number of ſhepherds, ſlaves, and men of deſperate fortunes; ſo that he ſoon ſaw himſelf at the head of a conſiderable army.

† See Mithridates.

Cinna, in the mean time, whom the ſenators had depoſed and driven out of Rome, ſolicited and obtained a powerful army from the allies; and being joined by Sertorius, a moſt able and experienced general, the two, in conjunction with Marius, advanced towards the capital; and as their forces daily increaſed, a fourth army was formed under the command of Papirius Carbo. The ſenate raiſed ſome forces to defend the city; but the troops being vaſtly inferior in number, and likewiſe inclined to the contrary ſide, they were obliged to open their gates to the confederates. Marius entered at the head of a numerous guard, compoſed of ſlaves, whom he called his *Bardiæans*, and whom he deſigned to employ in revenging himſelf on his enemies. The firſt order he gave theſe aſſaſſins was, to murder all who came to ſalute him, and were not anſwered with the like civility. As every one was forward to pay his compliments to the new tyrant, this order proved the deſtruction of vaſt numbers. At laſt theſe Bardiæans abandoned themſelves to ſuch exceſſes in every kind of vice, that Cinna and Sertorius ordered their troops to fall upon them; which being inſtantly put in execution, they were all cut off to a man.

By the deſtruction of his guards, Marius was reduced to the neceſſity of taking a method of gratifying his revenge ſomewhat more tedious, though equally effectual. A conference was held between the four chiefs, in which Marius ſeemed quite frantic with rage. Sertorius endeavoured to moderate his fury; but, being

over-ruled by Cinna and Carbo, a resolution was taken to murder without mercy all the senators who had opposed the popular faction. This was immediately put in execution. A general slaughter commenced, which lasted five days, and during which the greatest part of the obnoxious senators were cut off, their heads stuck upon poles over-against the rostra, and their bodies dragged with hooks into the forum, where they were left to be devoured by dogs. Sylla's house was demolished, his goods confiscated, and he himself declared an enemy to his country; however, his wife and children had the good fortune to make their escape.—This massacre was not confined to the city of Rome. The soldiers, like as many blood-hounds, were dispersed over the country in search of those who fled. The neighbouring towns, villages, and all the highways, swarmed with assassins; and on this occasion Plutarch observes with great concern, that the most sacred ties of friendship and hospitality are not proof against treachery, in the day of adversity, for there were but very few who did not discover their friends who had fled to them for shelter.

This slaughter being over, Cinna named himself and Marius consuls for the ensuing year; and these tyrants seemed resolved to begin the new year as they had ended the old one: but, while they were preparing to renew their cruelties, Sylla, having proved victorious in the east, sent a long letter to the senate, giving an account of his many victories, and his resolution of returning to Rome, not to restore peace to his country, but to revenge himself of his enemies, *i. e.* to destroy those whom Marius had spared. This letter occasioned an universal terror. Marius, dreading to enter the lists with such a renowned warrior, gave himself up to excessive drinking, and died. His son was associated with Cinna in the government, though not in the consulship, and proved a tyrant no less cruel than his father. The senate declared one Valerius Flaccus general of the forces in the east, and appointed him a considerable army; but the troops all to a man deserted him, and joined Sylla. Soon after, Cinna declared himself consul a third time, and took for his colleague Papirius Carbo; but the citizens, dreading the tyranny of these inhuman monsters, fled in crowds to Sylla, who was now in Greece. To him the senate sent deputies, begging that he would have compassion on his country, and not carry his resentment to such a length as to begin a civil war: but he replied, that he was coming to Rome full of rage and revenge; and that all his enemies, if the Roman people consented to it, should perish either by the sword or the axes of the executioners. Upon this several very numerous armies were formed against him; but, through the misconduct of the generals who commanded them, these armies were everywhere defeated, or went over to the enemy. Pompey, afterwards styled *the Great*, signalized himself in this war, and embraced the party of Sylla. The Italian nations took some one side and some another, as their different inclinations led them. Cinna, in the mean time, was killed in a tumult, and young Marius and Carbo succeeded him; but the former having ventured an engagement with Sylla, was by him defeated, and forced to fly to Prænestе, where he was closely besieged.

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186 Rome in the utmost danger from Telesinus a Samnite.

Thus was Rome reduced to the lowest degree of misery, when one Pontius Telesinus, a Samnite of great experience in war, projected the total ruin of the city. He had joined, or pretended to join, the generals of the Marian faction with an army of 40,000 men; and therefore marched towards Prænestе, as if he designed to relieve Marius. By this means he drew Sylla and Pompey away from the capital; and then, decamping in the night, over-reached these two generals, and by break of day was within 10 furlongs of the Collatine gate. He then pulled off the mask; and declaring himself as much an enemy to Marius as to Sylla, told his troops, that it was not his design to assist one Roman against another, but to destroy the whole race. "Let fire and sword (said he) destroy all; let no quarter be given; mankind can never be free as long as one Roman is left alive."—Never had this proud metropolis been in greater danger; nor ever had any city a more narrow escape. The Roman youth marched out to oppose him, but were driven back with great slaughter. Sylla himself was defeated, and forced to fly to his camp. Telesinus advanced with more fury than ever; but, in the mean time, the other wing of his army having been defeated by M. Crassus, the victorious general attacked the body where Telesinus commanded, and by putting them to flight, saved his country from the most imminent danger.

187 Monstrous cruelty of Sylla.

Sylla, having now no enemy to fear, marched first to Atemnæ, and thence to Rome. From the former city he carried 8000 prisoners to Rome, and caused them all to be massacred at once in the circus. His cruelty next fell upon the Prænestines, 12,000 of whom were massacred without mercy. Young Marius had killed himself, in order to avoid falling into the hands of such a cruel enemy. Soon after, the inhabitants of Norba, a city of Campania, finding themselves unable to resist the forces of the tyrant, set fire to their houses, and all perished in the flames. The taking of these cities put an end to the civil war, but not to the cruelties of Sylla. Having assembled the people in the comitium, he told the , that he was resolved not to spare a single person who had borne arms against him. This cruel resolution he put in execution with the most unrelenting vigour; and having at last cut off all those whom he thought capable of opposing him, Sylla caused himself to be declared perpetual dictator, or, in other words, king and absolute sovereign of Rome.

188 He is proclaimed perpetual dictator.

This revolution happened about 80 B. C. and from this time we may date the loss of the Roman liberty. Sylla indeed resigned his power in two years; but the citizens of Rome having once submitted, were ever after more inclined to submit to a master. Though individuals retained the same enthusiastic notions of liberty as before, yet the minds of the generality seem from this time to have inclined towards monarchy. New masters were indeed already prepared for the republic. Cæsar and Pompey had eminently distinguished themselves by their martial exploits, and were already rivals. They were, however, for some time prevented from raising any disturbances by being kept at a distance from each other. Sertorius, one of the generals of the Marian faction, and the only one of them possessed either of honour or probity, had retired

into

Rome.

Into Spain, where he erected a republic independent of Rome. Pompey and Metellus, two of the beſt reputed generals in Rome, were ſent againſt him; but inſtead of conquering, they were on all occaſions conquered by him, and obliged to abandon their enterpriſe with diſgrace. At laſt Sertorius was treacherouſly murdered; and the traitors, who after his death uſurped the command, being totally deſtitute of his abilites, were eaſily defeated by Pompey: and thus that general reaped an undeſerved honour from concluding the war with ſucceſs.

The Spaniſh war was ſcarce ended, when a very dangerous one was excited by Spartacus, a Thracian gladiator. For ſome time this rebel proved very ſucceſsful; but at laſt was totally defeated and killed by Craſſus. The fugitives, however, rallied again, to the number of 5000; but, being totally defeated by Pompey, the latter took occaſion from thence to claim the glory which was juſtly due to Craſſus. Being thus become extremely popular, and ſetting no bounds to his ambition, he was choſen conſul along with Craſſus. Both generals were at the head of powerful armies; and a conteſt between them immediately began about who ſhould firſt lay down their arms. With difficulty they were in appearance reconciled, and immediately began to oppoſe one another in a new way. Pompey courted the favour of the people, by reinſtating the tribunes in their ancient power, which had been greatly abridged by Sylla. Craſſus, though naturally covetous, entertained the populace with ſurpriſing profuſion at 10,000 tables, and at the ſame time diſtributed corn ſufficient to maintain their families for three months.—Theſe prodigious expences will ſeem leſs ſurpriſing, when we conſider that Craſſus was the richeſt man in Rome, and that his eſtate amounted to upwards of 7000 talents, *i. e.* 1,356,250 l. ſterling. Notwithſtanding his utmoſt efforts, however, Pompey ſtill had the ſuperiority; and was therefore propoſed as a proper perſon to be employed for clearing the ſeas of pirates. In this new ſtation a moſt extenſive power was to be granted to him. He was to have an abſolute authority for three years over all the ſeas within the ſtraits or pillars of Hercules, and over all the countries for the ſpace of 400 furlongs from the ſea. He was empowered to raiſe as many ſoldiers and mariners as he thought proper; to take what ſums of money he pleaſed out of the public treaſury without being accountable for them; and to chooſe out of the ſenate fifteen ſenators to be his lieutenants, and to execute his orders when he himſelf could not be preſent. The ſenſible part of the people were againſt inveſting one man with ſo much power; but the unthinking multitude rendered all oppoſition fruitleſs. The tribune Roſcius attempted to ſpeak againſt it, but was prevented by the clamours of the people. He then held up two of his fingers, to ſhow that he was for dividing that extenſive commiſſion between two perſons: but on this the aſſembly burſt out into ſuch hideous outcries, that a crow flying accidentally over the comitium, was ſtunned with the noiſe, and fell down among the rabble. This law being agreed to, Pompey executed his commiſſion ſo much to the public ſatisfaction, that on his return a new law was propoſed in his favour. By this he was to be appointed general of all the forces in Aſia; and as he was ſtill to retain the ſovereignty of the ſeas, he was now in fact made ſovereign of all the Roman empire.—This law was ſupported by Cicero and Cæſar, the former aſpiring at the conſulate, and the latter pleaſed to ſee the Romans ſo readily appointing themſelves a maſter. Pompey, however, executed his commiſſion with the utmoſt fidelity and ſucceſs, completing the conqueſt of Pontus, Albania, Iberia, &c. which had been ſucceſsfully begun by Sylla and Lucullus.

189 Pompey and Craſſus aſſume great authority.

But while Pompey was thus aggrandiſing himſelf, the republic was on the point of being ſubverted by a conſpiracy formed by Lucius Sergius Catiline. He was deſcended from an illuſtrious family; but having quite ruined his eſtate, and rendered himſelf infamous by a ſeries of the moſt deteſtable crimes, he aſſociated with a number of others in circumſtances ſimilar to his own, in order to repair their broken fortunes by ruining their country. Their ſcheme was to murder the conſuls together with the greateſt part of the ſenators, ſet fire to the city in different places, and then ſeize the government. This wicked deſign miſcarried twice; but was not on that account dropped by the conſpirators. Their party increaſed every day; and both Cæſar and Craſſus, who ſince the departure of Pompey had ſtudied to gain the affections of the people as far as poſſible, were thought to have been privy to the conſpiracy. At laſt, however, the matter was diſcovered by means of a young knight, who had indiſcreetly revealed the ſecret to his paramour. Catiline then openly took the field, and ſoon raiſed a conſiderable army: but was utterly defeated and killed about 62 B. C.; and thus the republic was freed from the preſent danger.

Conſpiracy of Catiline.

In the mean time, Cæſar continued to advance in popularity and in power. Soon after the defeat of Catiline, he was created pontifex maximus; and after that was ſent into Spain, where he ſubdued ſeveral nations that had never before been ſubject to Rome.—While he was thus employed, his rival Pompey returned from the eaſt, and was received with the higheſt honours; but though ſtill as ambitious as ever, he now affected extraordinary modeſty, and declined accepting of the applauſe which was offered him. His aim was to aſſume a ſovereign authority without ſeeming to deſire it; but he was ſoon convinced, that, if he deſired to reign over his fellow-citizens, it muſt be by force of arms. He therefore renewed his intrigues, and ſpared no pains, however mean and ſcandalous, to increaſe his popularity. Cæſar, on his return from Spain, found the ſovereignty divided between Craſſus and Pompey, each of whom was ineffectually ſtruggling to get the better of the other. Cæſar, no leſs ambitious than the other two, propoſed that they ſhould put an end to their differences, and take him for a partner in their power. In ſhort, he projected a triumvirate, or aſſociation of three perſons, (Pompey, Craſſus, and himſelf), in which ſhould be lodged the whole power of the ſenate and people; and, in order to make their confederacy more laſting, they bound themſelves by mutual oaths and promiſes to ſtand by each other, and ſuffer nothing to be undertaken or carried into execution without the unanimous conſent of all the three.

The triumvirate.

Thus was the liberty of the Romans taken away a ſecond time, nor did they ever afterwards recover it; though at preſent none perceived that this was the caſe, except

except Cato. The association of the triumvirs was for a long time kept secret; and nothing appeared to the people except the reconciliation of Pompey and Crassus, for which the state reckoned itself indebted to Cæsar. The first consequence of the triumvirate was the consulship of Julius Cæsar. But though this was obtained by the favour of Pompey and Crassus, he found himself disappointed in the colleague he wanted to associate with him in that office. He had pitched upon one whom he knew he could manage as he pleased, and distributed large sums among the people in order to engage them to vote for him. The senate, however, and even Cato himself, resolved to defeat the triumvir at his own weapons; and having therefore set up another candidate, distributed such immense sums on the opposite side, that Cæsar, notwithstanding the vast riches he had acquired, was forced to yield. This defeat proved of small consequence. Cæsar set himself to engage the affections of the people; and this he did, by an agrarian law, so effectually, that he was in a manner idolized. The law was in itself very reasonable and just; nevertheless, the senate, perceiving the design with which it was proposed, thought themselves bound to oppose it. Their opposition, however, proved fruitless: the consul Bibulus, who shewed himself most active in his endeavours against it, was driven out of the assembly with the greatest indignity, and from that day became of no consideration; so that Cæsar was reckoned the sole consul.

The next step taken by Cæsar was to secure the knights, as he had already done the people; and for this purpose he abated a third of the rents which they annually paid into the treasury; after which he governed Rome with an absolute sway during the time of his consulate. The reign of this triumvir, however, was ended by his expedition into Gaul, where his military exploits acquired him the highest reputation.—Pompey and Crassus in the mean time became consuls, and governed as despotically as Cæsar himself had done. On the expiration of their first consulate, the republic fell into a kind of anarchy, entirely owing to the disorders occasioned by the two late consuls. At last, however, this confusion was ended by raising Crassus and Pompey to the consulate a second time. This was no sooner done, than a new partition of the empire was proposed. Crassus was to have Syria and all the eastern provinces, Pompey was to govern Africa and Spain, and Cæsar to be continued in Gaul, and all this for the space of five years. This law was passed by a great majority; upon which Crassus undertook an expedition against the Parthians, whom he imagined he should easily overcome, and then enrich himself with their spoils; Cæsar applied with great assiduity to the completing of the conquest of Gaul; and Pompey having nothing to do in his province, staid at Rome to govern the republic alone.

The affairs of the Romans were now hastening to a crisis. Crassus, having oppressed all the provinces of the east, was totally defeated and killed by the Parthians *; after which the two great rivals Cæsar and Pompey were left alone, without any third person who could hold the balance between them, or prevent the deadly quarrels which were about to ensue. Matters, however, continued pretty quiet till Gaul was reduced to a Roman province §. The question then was, whether Cæsar or Pompey should first resign the command of their armies, and return to the rank of private persons. As both parties saw, that whoever first laid down his arms must of course submit to the other, both refused to disarm themselves. As Cæsar, however, had amassed immense riches in Gaul, he was now in a condition not only to maintain an army capable of vying with Pompey, but even to buy over the leading men in Rome to his interest. One of the consuls, named *Æmilius Paulus*, cost him no less than 1500 talents, or 310,625 l. sterling; but the other, named *Marcellus*, could not be gained at any price. Pompey had put at the head of the tribunes one Scribonius Curio, a young patrician of great abilities, but so exceedingly debauched and extravagant, that he owed upwards of four millions and a half of our money. Cæsar, by enabling him to satisfy his creditors, and supplying him with money to pursue his debaucheries, secured him in his interest; and Curio, without seeming to be in Cæsar's interest, found means to do him the most essential service. He proposed that both generals should be recalled; being well assured that Pompey would never consent to part with his army, or lay down the government of Spain with which he had been invested, so that Cæsar might draw from Pompey's refusal a pretence for continuing himself in his province at the head of his troops. This proposal threw the opposite party into great embarrassments; and while both professed their pacific intentions, both continued in readiness for the most obstinate and bloody war.—Cicero took upon himself the office of mediator; but Pompey would hearken to no terms of accommodation. The orator, surprised to find him so obstinate, at the same time that he neglected to strengthen his army, asked him with what forces he designed to make head against Cæsar? To which the other answered, that he needed but stamp with his foot, and an army would start up out of the ground. This confidence he assumed because he persuaded himself that Cæsar's men would abandon him if matters came to extremities. Cæsar, however, though he affected great moderation, yet kept himself in readiness for the worst; and therefore, when the senate passed the fatal decree for a civil war, he was not in the least alarmed. This decree was issued in the year 49 B. C. and was expressed in the following words: "Let the consuls for the year, the proconsul Pompey, the prætors, and all those in or near Rome who have been consuls, provide for the public safety by the most proper means." This decree was no sooner passed, than the consul Marcellus went, with his colleague Lentulus, to an house at a small distance from the town, where Pompey then was; and presenting him with a sword, "We require you (said he) to take upon you with this the defence of the republic, and the command of her troops." Pompey obeyed; and Cæsar was by the same decree divested of his office, and one Lucius Domitius appointed to succeed him, the new governor being empowered to raise 4000 men in order to take possession of his province.

Rome

193 The decree for a civil war.

War being thus resolved on, the senate and Pompey began to make the necessary preparations for opposing Cæsar. The attempt of the latter to withstand their authority they termed a *tumult*; from which contemptible epithet it appeared that they either did not know, or did not dread, the enemy whom they were bringing upon themselves. However, they ordered 30,000 Roman

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man forces to be assembled, together with as many foreign troops as Pompey should think proper; the expence of which armament was defrayed from the public treasury. The governments of provinces, and all public honours, were bestowed upon such as were remarkable for their attachment to Pompey and their enmity to Cæsar. The latter, however, was by no means wanting in what concerned his own interest. Three of the tribunes who had been his friends were driven out of Rome, and arrived in his camp disguised like slaves. Cæsar showed them to his army in this ignominious habit; and, setting forth the iniquity of the senate and patricians, exhorted his men to stand by their general under whom they had served so long with success; and finding by their acclamations that he could depend on them, he resolved to begin hostilities immediately.

194 Hostilities begun by Cæsar.

The first design of Cæsar was to make himself master of Ariminum, a city bordering upon Cisalpine Gaul, and consequently a part of his province; but as this would be looked upon as a declaration of war, he resolved to keep his design as private as possible. At that time he himself was at Ravenna, from whence he sent a detachment towards the Rubicon, desiring the officer who commanded it to wait for him on the banks of that river. The next day he assisted at a show of gladiators, and made a great entertainment. Towards the close of the day he rose from table, desiring his guests to stay till he came back, which he said would be very soon; but, instead of returning to the company, he immediately set out for the Rubicon, having left orders to some of his most intimate friends to follow him through different roads, to avoid being observed. Having arrived at the Rubicon, which parted Cisalpine Gaul from Italy, the succeeding misfortunes of the empire occurred to his mind, and made him hesitate. Turning then to Asinius Pollio, "If I do not cross the river (said he), I am undone; and if I do cross it, how many calamities shall I by this means bring upon Rome!" Having thus spoken, he mused a few minutes; and then crying out, "The die is cast," he threw himself into the river, and crossing it, marched with all possible speed to Ariminum, which he reached and surprised before daybreak. From thence, as he had but one legion with him, he dispatched orders to the formidable army he had left in Gaul to cross the mountains and join him.

The activity of Cæsar struck the opposite party with the greatest terror; and indeed not without reason, for they had been extremely negligent in making preparations against such a formidable opponent. Pompey himself, no less alarmed than the rest, left Rome with a design to retire to Capua, where he had two legions whom he had formerly draughted out of Cæsar's army. He communicated his intended flight to the senate; but at the same time acquainted them, that if any magistrate or senator refused to follow him, he should be treated as a friend to Cæsar and an enemy to his country. In the mean time Cæsar, having raised new troops in Cisalpine Gaul, sent Marc Antony with a detachment to seize Aretium, and some other officers to secure Pisaurum and Fanum, while he himself marched at the head of the thirteenth legion to Auximum, which opened its gates to him. From Auximum he advanced into Picenum, where he was joined by the twelfth legion from Transalpine Gaul. As Picenum readily submitted to him, he led his forces against Corsinium, the capital of the Peligni, which Domitus Ahenobarbus defended with thirty cohorts. But Cæsar no sooner invested it, than the garrison betrayed their commander, and delivered him up with many senators, who had taken refuge in the place, to Cæsar, who granted them their lives and liberty. Domitius, fearing the resentment of the conqueror, had ordered one of his slaves, whom he used as a physician, to give him a dose of poison. When he came to experience the humanity of the conqueror, he lamented his misfortune, and blamed the hastiness of his own resolution. But his physician, who had only given him a sleeping draught, comforted him, and received his liberty as a reward for his affection.

195 Takes several towns.

Pompey, thinking himself no longer safe at Capua after the reduction of Corsinium, retired to Brundusium, with a design to carry the war into the east, where all the governors were his creatures. Cæsar followed him close; and arriving with his army before Brundusium, invested the place on the land-side, and undertook to shut up the port by a staccado of his own invention. But, before the work was completed, the fleet which had conveyed the two consuls with thirty cohorts to Dyrrhachium being returned, Pompey resolved to make his escape, which he conducted with all the experience and dexterity of a great officer. He kept his departure very secret; but, at the same time, made all necessary preparations for the facilitating of it. In the first place, he walled up the gates, then dug deep and wide ditches cross all the streets, except only those two that led to the port; in the ditches he planted sharp pointed stakes, covering them with hurdles and earth. After these precautions, he gave express orders that all the citizens should keep within doors, lest they should betray his design to the enemy; and then, in the space of three days, embarked all his troops, except the light-armed infantry, whom he had placed on the walls; and these likewise, on a signal given, abandoning their posts, repaired with great expedition to the ships. Cæsar, perceiving the walls unguarded, ordered his men to scale them, and make what haste they could after the enemy. In the heat of the pursuit, they would have fallen into the ditches which Pompey had prepared for them, had not the Brundusians warned them of the danger, and, by many windings and turnings, led them to the haven, where they found all the fleet under sail, except two vessels, which had run aground in going out of the harbour. These Cæsar took, made the soldiers on board prisoners, and brought them ashore.

Cæsar, seeing himself, by the flight of his rival, master of all Italy from the Alps to the sea, was desirous to follow and attack him before he was joined by the supplies which he expected from Asia. But being destitute of shipping, he resolved to go first to Rome, and settle some sort of government there; and then pass into Spain, to drive from thence Pompey's troops, who had taken possession of that great continent, under the command of Afranius and Petreius. Before he left Brundusium, he sent Scribonius Curio with three legions into Sicily, and ordered Q. Valerius, one of his lieutenants, to get together what ships he could, and cross over with one legion into Sardinia. Cato, who commanded in Sicily, upon the first news of Curio's landing there, abandoned the island, and retired to the camp of the consuls at Dyrrhachium; and Q. Valerius no sooner appeared with his small fleet off Sardinia,

than the Caralitini, now the inhabitants of Cagliari, drove out Aurelius Cotta, who commanded there for the senate, and put Cæsar's lieutenant in possession both of their city and island.

In the mean time the general himself advanced towards Rome; and on his march wrote to all the senators then in Italy, desiring them to repair to the capital, and assist him with their counsel. Above all, he was desirous to see Cicero; but could not prevail upon him to return to Rome. As Cæsar drew near the capital, he quartered his troops in the neighbouring municipia; and then advancing to the city, out of a pretended respect to the ancient customs, he took up his quarters in the suburbs, whether the whole city crowded to see the famous conqueror of Gaul, who had been absent near ten years. And now such of the tribunes of the people as had fled to him for refuge reassumed their functions, mounted the rostra, and endeavoured by their speeches to reconcile the people to the head of their party. Marc Antony particularly, and Cassius Longinus, two of Cæsar's most zealous partisans, moved that the senate should meet in the suburbs, that the general might give them an account of his conduct. Accordingly, such of the senators as were at Rome assembled; when Cæsar made a speech in justification of all his proceedings, and concluded his harangue with proposing a deputation to Pompey, with offers of an accommodation in an amicable manner. He even desired the conscript fathers, to whom in appearance he paid great deference, to nominate some of their venerable body to carry proposals of peace to the consuls, and the general of the consular army; but none of the senators would take upon him that commission. He then began to think of providing himself with the necessary sums for carrying on the war, and had recourse to the public treasury. But Metellus, one of the tribunes, opposed him; alleging a law forbidding any one to open the treasury, but in the presence and with the consent of the consuls. Cæsar, however, without regarding the tribune, went directly to the temple of Saturn, where the public money was kept. But the keys of the treasury having been carried away by the consul Lentulus, he ordered the doors to be broken open. This Metellus opposed: but Cæsar, in a passion, laying his hand on his sword, threatened to kill him if he gave him any farther disturbance; which so terrified Metellus, that he withdrew. Cæsar took out of the treasury, which was ever after at his command, an immense sum; some say, 300,000 pounds weight of gold. With this supply of money he raised troops all over Italy, and sent governors into all the provinces subject to the republic.

Cæsar now made Marc Antony commander in chief of the armies in Italy, sent his brother C. Antonius to govern Illyricum, assigned Cisalpine Gaul to Licinius Crassus, appointed M. Æmilius Lepidus governor of the capital; and having got together some ships to cruise in the Adriatic and Mediterranean seas, he gave the command of one of his fleets to P. Cornelius Dolabella, and of the other to young Hortensius, the son of the famous orator. As Pompey had sent governors into the same provinces, by this means a general war was kindled in almost all the parts of the known world. However, Cæsar would not trust any of his lieutenants with the conduct of the war in Spain, which was Pompey's favourite province, but took it upon himself; and having settled his affairs in great haste at Rome, returned to Ariminum, assembled his legions there, and passing the Alps, entered Transalpine Gaul. There he was informed that the inhabitants of Marseilles had resolved to refuse him entrance into their city; and that L. Domitius Ahenobarbus, whom he had generously pardoned and set at liberty after the reduction of Corfinium, had set sail for Marseilles with seven galleys, having on board a great number of his clients and slaves, with a design to raise the city in favour of Pompey. Cæsar, thinking it dangerous to let the enemy take possession of such an important place, sent for the 15 chief magistrates of the city, and advised them not to begin a war with him, but rather follow the example of Italy, and submit. The magistrates returned to the city, and soon after informed him that they were to stand neuter; but in the mean time Domitius arriving with his small squadron, was received into the city, and declared general of all their forces. Hereupon Cæsar immediately invested the town with three legions, and ordered twelve galleys to be built at Arelas, now *Arles*, in order to block up the port. But as the siege was like to detain him too long, he left C. Trebonius to carry it on, and D. Brutus to command the fleet, while he continued his march into Spain, where he began the war with all the valour, ability, and success of a great general. Pompey had three generals in this continent, which was divided into two Roman provinces. Varro commanded in Farther Spain; and Petreius and Afranius, with equal power, and two considerable armies, in Hither Spain. Cæsar, while he was yet at Marseilles, sent Q. Fabius, one of his lieutenants, with three legions, to take possession of the passes of the Pyrenees, which Afranius had seized. Fabius executed his commission with great bravery, entered Spain, and left the way open for Cæsar, who quickly followed him. As soon as he had crossed the mountains, he sent out scouts to observe the situation of the enemy; by whom he was informed, that Afranius and Petreius having joined their forces, consisting of five legions, 20 cohorts of the natives, and 5000 horse, were advantageously posted on an hill of an easy ascent in the neighbourhood of Ilerda, now *Lerida*, in Catalonia. Upon this advice Cæsar advanced within sight of the enemy, and encamped in a plain between the Sicoris and Cinga, now the *Segro* and *Cinca*. Between the eminence on which Afranius had posted himself, and the city of Ilerda, was a small plain, and in the middle of it a rising ground, which Cæsar attempted to seize, in order to cut off by that means the communication between the enemy's camp and the city, from whence they had all their provisions. This occasioned a sharp dispute between three of Cæsar's legions and an equal number of the enemy, which lasted five hours with equal success, both parties claiming the victory. But after all, Afranius's men, who had first seized the post, maintained themselves in possession of it in spite of Cæsar's utmost efforts. Two days after this battle, continual rains, with the melting of the snow on the mountains, so swelled the two rivers between which Cæsar was encamped, that they overflowed, broke down his bridges, and laid under water the neighbouring country to a great distance. This cut off the communication between his camp and the cities that had declared for him; and reduced him to such straits, that his army was ready to die for famine, wheat being sold in his camp

199 Is reduced to great distress in Spain.

Rome.

camp at 50 Roman denarii *per* bushel, that is, 1 l. 12 s. 1½ d. sterling. He tried to rebuild his bridges, but in vain; the violence of the stream rendering all his endeavours fruitless.

Upon the news of Cæsar's distress, Pompey's party at Rome began to take courage. Several persons of distinction went to congratulate Afranius's wife on the success of her husband's arms in Spain. Many of the senators who had hitherto stood neuter, hastened to Pompey's camp, taking it for granted that Cæsar was reduced to the last extremity, and all hopes of his party lost. Of this number was Cicero; who, without any regard to the remonstrances of Atticus, or the letters Cæsar himself wrote to him, desiring him to join neither party, he left Italy, and landed at Dyrrhachium, where Pompey received him with great marks of joy and friendship. But the joy of Pompey's party was not long-lived. For Cæsar, after having attempted several times in vain to rebuild his bridges, caused boats to be made with all possible expedition; and while the enemy were diverted by endeavouring to intercept the succours that were sent him from Gaul, he laid hold of that opportunity to convey his boats in the night on carriages 22 miles from his camp; where with wonderful quickness a great detachment passed the Sicoris, and encamping on the opposite bank unknown to the enemy, built a bridge in two days, opened a communication with the neighbouring country, received the supplies from Gaul, and relieved the wants of his soldiers. Cæsar being thus delivered from danger, pursued the armies of Afranius and Petreius with such superior address and conduct, that he forced them to submit without coming to a battle, and by that means became master of all Hither Spain. The two generals disbanded their troops, sent them out of the province, and returned to Italy, after having solemnly promised never to assemble forces again, or make war upon Cæsar. Upon the news of the reduction of Hither Spain, the Spaniards in Farther Spain, and one Roman legion, deserted from Varro, Pompey's governor in that province, which obliged him to surrender his other legion and all his money.

200 Overcomes his difficulties and reduces all Spain.

Cæsar having thus reduced all Spain in a few months, appointed Cassius Longinus to govern the two provinces with four legions, and then returned to Marseilles; which city was just upon the point of surrendering after a most vigorous resistance. Though the inhabitants had by their late treachery deserved a severe punishment, yet he granted them their lives and liberty; but stripped their arsenals of arms, and obliged them to deliver up all their ships. From Marseilles Cæsar marched into Cisalpine Gaul; and from thence hastened to Rome, where he laid the foundation of his future grandeur. He found the city in a very different state from that in which he had left it. Most of the senators and magistrates were fled to Pompey at Dyrrhachium. However, there were still prætors there; and among them M. Æmilius Lepidus, who was afterwards one of the triumvirs with Octavius and Marc Antony. The prætor, to ingratiate himself with Cæsar, nominated him dictator of his own authority, and against the inclination of the senate. Cæsar accepted the new dignity; but neither abused his power, as Sylla had done, nor retained it so long. During the 11 days of his dictatorship, he governed with great moderation, and gained the affections both of the people and the patricians. He recalled the exiles, granted the rights and privileges of Roman citizens to all the Gauls beyond the Po, and, as pontifex maximus, filled up the vacancies of the sacerdotal colleges with his own friends. Though it was expected that he would have absolutely cancelled all debts contracted since the beginning of the troubles, he only reduced the interest to one-fourth. But the chief use he made of his dictatorship was to preside at the election of consuls for the next year, when he got himself, and Servilius Isauricus, one of his most zealous partisans, promoted to that dignity.

204 Returns to Rome, and is created dictator.

And now being resolved to follow Pompey, and carry the war into the east, he set out for Brundusium, whither he had ordered 12 legions to repair with all possible expedition. But on his arrival he found only five there. The rest, being afraid of the dangers of the sea, and unwilling to engage in a new war, had marched leisurely, complaining of their general for allowing them no respite, but hurrying them continually from one country to another. However, Cæsar did not wait for them, but set sail with only five legions and 600 horse in the beginning of January. While the rest were waiting at Brundusium for ships to transport them over into Epirus, Cæsar arrived safe with his five legions in Chaonia, the northern part of Epirus, near the Ceraunian mountains. There he landed his troops, and sent the ships back to Brundusium to bring over the legions that were left behind. The war he was now entering upon was the most difficult he had yet undertaken. Pompey had for a whole year been assembling troops from all the eastern countries. When he left Italy, he had only five legions; but since his arrival at Dyrrhachium he had been reinforced with one from Sicily, another from Crete, and two from Syria. Three thousand archers, six cohorts of slingers, and seven thousand horse, had been sent him by princes in alliance with Rome. All the free cities of Asia had reinforced his army with their best troops; nay, if we give credit to an historical poet, succours were brought him from the Indus and the Ganges to the east, and from Arabia and Ethiopia to the south; at least it is certain, that Greece, Asia Minor, Syria, Palestine, Egypt, and all the nations from the Mediterranean to the Euphrates, took up arms in his favour. He had almost all the Roman knights, that is, the flower of the young nobility, in his squadrons, and his legions consisted mostly of veterans inured to dangers and the toils of war. Pompey himself was a general of great experience and address; and had under him some of the best commanders of the republic, who had formerly conducted armies themselves. As for his navy, he had above 500 ships of war, besides a far greater number of small vessels, which were continually cruising on the coasts, and intercepted such ships as carried arms or provisions to the enemy. He had likewise with him above 200 senators, who formed a more numerous senate than that at Rome. Cornelius Lentulus and Claudius Marcellus, the last year's consuls, presided in it; but under the direction of Pompey their protector, who ordered them to assemble at Thessalonica, where he built a stately hall for that purpose. There, in one of their assemblies, at the motion of Cato, it was decreed, that no Roman citizen should be put to death but in battle, and that no city subject to the republic should be sacked. At the same time the

205 Follows Pompey to the east.

Rome.

conscript fathers assembled at Thessalonica decreed, that they alone represented the Roman senate, and that those who resided at Rome were encouragers of tyranny, and friends to the tyrant. And indeed, as the flower of the nobility was with Pompey, and the most virtuous men in the republic had taken refuge in his camp, he was generally looked upon as the only hope and support of the public liberty. Hence many persons of eminent probity, who had hitherto stood neuter, flocked to him from all parts. Among these were young Brutus, who afterwards conspired against Cæsar, Tidius Sextius, and Labienus. Brutus, whose father had been put to death in Galatia by Pompey's order, had never spoken to him, or so much as saluted him since that time: but as he now looked upon him as the defender of the public liberty, he joined him, sacrificing therein his private resentment to the interest of the public. Pompey received him with great joy, and was willing to confer upon him some command; but he declined the offer. Tidius Sextius, though extremely old and lame, yet left Rome, and went as far as Macedonia to join Pompey there. Labienus likewise forsook his old benefactor, under whom he had served during the whole course of the Gaulish war, and went over to his rival, though Cæsar had appointed him commander in chief of all the forces on the other side the Alps. In short, Pompey's party grew into such reputation, that his cause was generally called the *good cause*, while Cæsar's adherents were looked upon as enemies to their country, and abettors of tyranny.

203 Cæsar's progress of commotion, where stopped.

As soon as Cæsar landed, he marched directly to Oricum, the nearest city in Epirus, which was taken without opposition. The like success attended him at Apollonia, which was in no condition to stand a siege; and these two conquests opened a way to Dyrrhachium, where Pompey had his magazines of arms and provisions. This success, however, was interrupted by the news that the fleet which he had sent back to Brundusium to transport the rest of his troops had been attacked by Bibulus, one of Pompey's admirals, who had taken 30, and inhumanly burnt them with the seamen on board. This gave Cæsar great uneasiness, especially as he heard that Bibulus, with 110 ships of war, had taken possession of all the harbours between Salonium and Oricum; so that the legions at Brundusium could not venture to cross the sea without great danger of falling into the enemy's hands. By this Cæsar was so much embarrassed, that he made proposals of accommodation upon very moderate terms; being no other than that both Pompey and he should disband their armies within three days, renew their former friendship with solemn oaths, and return together to Italy. These proposals were sent by Vibullius Rufus, an intimate friend of Pompey, whom Cæsar had twice taken prisoner. Pompey, however, probably elated with his late good fortune, answered that he would not hearken to any terms, lest it should be said that he owed his life and return to Italy to Cæsar's favour. However, the latter again sent one Vatinius to confer with Pompey about a treaty of peace. Labienus was appointed to receive the proposals; but while they were conferring together, a party of Pompey's men coming up to them, discharged their darts at Vatinius and those who attended him. Some of the guards were wounded, and Vatinius narrowly escaped with his life.

In the mean time Cæsar advanced towards Dyrrhachium, in hopes of surprising that important place; but Pompey unexpectedly appearing, he halted on the other side of the river Apsus, where he intrenched himself, as having but a small number of troops in comparison of the formidable army which attended Pompey. The latter, however, notwithstanding his superiority, durst not cross the river in Cæsar's sight; so that the two armies continued for some time quiet in their respective camps. Cæsar wrote letter after letter to Marc Antony, who commanded the legions he had left in Italy, to come to his assistance; but receiving no answer, Cæsar disguised himself in the habit of a slave, and with all imaginable secrecy went on board a fisherman's bark, with a design to go over to Brundusium, though the enemy's fleet was cruising on the coasts both of Greece and Italy. This design, however, miscarried, by reason of the boat being put back by contrary winds; and thus Cæsar was restored to his soldiers, who had been very uneasy at his absence. He was no sooner landed than he dispatched Posthumius, one of his lieutenants, with most pressing orders to Marc Antony, Gabinius, and Calenus, to bring the troops to him at all adventures. Gabinius, unwilling to expose all the hopes of his general to the hazards of the sea, thought it safer to march a great way about by Illyricum, and therefore engaged all the legionaries he could to follow him by land. But the Illyrians, who had, unknown to him, declared for Pompey, fell unexpectedly upon him and killed him and his men, not one escaping. Marc Antony and Calenus, who went by sea, were in the greatest danger from one of Pompey's admirals; but had the good luck to bring their troops safe to shore at Nyphæum, in the neighbourhood of Apollonia. As soon as it was known that Antony was landed, Pompey marched to prevent his joining Cæsar. On the other hand, Cæsar instantly decamped, and hastening to the relief of his lieutenant, joined him before Pompey came up. Then Pompey, not caring to engage them when united, retired to an advantageous post in the neighbourhood of Dyrrhachium, known by the name of *Asparagium*, and there encamped. Cæsar having thus at length got all his troops together, resolved to finish the war by one general action, and determine the fate of the world, either by his own death or by that of his rival. To this end he offered Pompey battle, and kept his army a great while drawn up in sight of the enemy. But Pompey declining an engagement, he decamped, and turned towards Dyrrhachium, as if he designed to surprise it, hoping by this means to draw Pompey into the plain. But Pompey, looking upon the taking of Dyrrhachium as a chimerical project, followed Cæsar at some distance, and letting him draw near to the city, encamped on a hill called *Petra*, which commanded the sea, whence he could be supplied with provisions from Greece and Asia, while Cæsar was forced to bring corn by land from Epirus, at a vast expence, and through many dangers.

This inconvenience put Cæsar upon a new design, which was to surround an army far more numerous than his own, and, by shutting them up within a narrow tract of ground, distress them as much for want of forage as his troops were distressed for want of corn. Pursuant to this design, he drew a line of circumvallation from the sea quite round Pompey's camp, and kept him his camp.

204 Besieges Pompey in

him so closely blocked up, that though his men were plentifully supplied with provisions by sea, yet the horses of his army began soon to die in great numbers for want of forage. Cæsar's men, though in the utmost distress for want of corn, yet bore all with incredible cheerfulness; protesting, that they would rather live upon the bark of trees than suffer Pompey to escape, now they had him in their power. Cæsar tells us, that in this extremity such of the army as had been in Sardinia found out the way of making bread of a certain root called *clara*, which they steeped in milk; and that when the enemy insulted them on account of the starving condition which they were in, they threw several of these loaves among them, to put them out of all hopes of subduing them by famine. "So long as the earth produces such roots (said they), we will not let Pompey escape." At length Pompey, alarmed at the distempers which began to prevail in his army, made several attempts to break through the barriers that inclosed him, but was always repulsed with loss. At length, being reduced to the utmost extremity for want of forage, he resolved at all events to force the enemy's lines and escape. With the assistance, therefore, and by the advice of two deserters, he embarked his archers, slingers, and light-armed infantry, and marching himself by land at the head of 60 cohorts, went to attack that part of Cæsar's lines which was next to the sea, and not yet quite finished. He set out from his camp in the dead of the night, and arriving at the post he designed to force by break of day, he began the attack by sea and land at the same time. The ninth legion, which defended that part of the lines, made for some time a vigorous resistance; but being attacked in the rear by Pompey's men, who came by sea, and landed between Cæsar's two lines, they fled with such precipitation, that the succours Marcellinus sent them from a neighbouring post could not stop them. The ensign who carried the eagle at the head of the routed legion was mortally wounded; but nevertheless, before he died, had presence of mind enough to consign the eagle to the cavalry of the party, desiring them to deliver it to Cæsar. Pompey's men pursued the fugitives, and made such a slaughter of them, that all the centurions of the first cohort were cut off except one. And now Pompey's army broke in like a torrent upon the posts Cæsar had fortified, and were advancing to attack Marcellinus, who guarded a neighbouring fort; but Marc Antony coming very seasonably to his relief with 12 cohorts, they thought it advisable to retire.

205 Is driven from some of his posts.

206 Cæsar defeated and in great danger.

Soon after Cæsar himself arrived with a strong reinforcement, and posted himself on the shore, in order to prevent such attempts for the future. From this post he observed an old camp which he had made within the place where Pompey was inclosed, but afterwards abandoned. Upon his quitting it, Pompey had taken possession of it, and left a legion to guard it. This post Cæsar resolved to reduce, hoping to repair the loss he had sustained on this unfortunate day, by taking the legion which Pompey had posted there. Accordingly, he advanced secretly at the head of 33 cohorts in two lines: and arriving at the old camp before Pompey could have notice of his march, attacked it with great vigour, forced the first intrenchment, notwithstanding the brave resistance of Titus Fulcio, and penetrated to the second, whither the legion had retired. But here his fortune changed on a sudden. His right wing, in looking for an entrance into the camp, marched along the outside of a trench which Cæsar had formerly carried on from the left angle of his camp, about 400 paces, to a neighbouring river. This trench they mistook for the rampart of the camp; and being led away by that mistake from their left wing, they were soon after prevented from rejoining it by the arrival of Pompey, who came up at the head of a legion and a large body of horse. Then the legion which Cæsar had attacked taking courage, made a brisk sally, drove his men back to the first intrenchment which they had seized, and there put them in great disorder while they were attempting to pass the ditch. Pompey, in the mean time, falling upon them with his cavalry in flank, completed their defeat; and then flying to the enemy's right wing, which had passed the trench mentioned above, and was shut up between that and the ramparts of the old camp, made a most dreadful slaughter of them. The trench was filled with dead bodies, many falling into it in that disorder, and others passing over them and pressing them to death.

In this distress, Cæsar did all he could to stop the flight of his legionaries, but to no purpose: the standard-bearers themselves threw down the Roman eagles when Cæsar endeavoured to stop them, and left them in the hands of the enemy, who on this occasion took 32 standards; a disgrace which Cæsar had never suffered before. He was himself in no small danger of falling by the hand of one of his own men, whom he took hold of when flying, bidding him stand and face about; but the man, apprehensive of the danger he was in, drew his sword, and would have killed him, had not one of his guards prevented the blow by cutting off his arm. Cæsar lost on this occasion 960 of his foot, 400 of his horse, 5 tribunes, and 32 centurions.

207 He retrieves his affairs.

This loss and disgrace greatly mortified Cæsar, but did not discourage him. After he had by his lenity and eloquent speeches recovered the spirit of his troops, he decamped, and retired in good order to Apollonia, where he paid the army, and left his sick and wounded. From thence he marched into Macedon, where Scipio Metellus, Pompey's father-in-law, was encamped. He hoped either to draw his rival into some plain, or to overpower Scipio if not assisted. He met with great difficulties on his march, the countries through which he passed refusing to supply his army with provisions; to such a degree was his reputation sunk since his last defeat! On his entering Thessaly he was met by Domitius, one of his lieutenants, whom he had sent with three legions to reduce Epirus. Having now got all his forces together, he marched directly to Gomphi, the first town of Thessaly, which had been formerly in his interest, but now declared against him. Whereupon he attacked it with so much vigour, that though the garrison was very numerous, and the walls were of an uncommon height, he made himself master of it in a few hours. From hence he marched to Metropolis, another considerable town of Thessaly, which immediately surrendered; as did all the other cities of the country, except Larissa, of which Scipio had made himself master.

On the other hand, Pompey being continually importuned by the senators and officers of his army, left his camp at Dyrrhachium, and followed Cæsar, firmly resolved

Rome.

resolved not to give him battle, but rather to distress him by keeping close at his heels, straitening his quarters, and cutting off his convoys. As he had frequent opportunities of coming to an engagement, but always declined it, his friends and subalterns began to put ill constructions on his dilatoriness to his face.

208 Pompey resolves to engage.

These, together with the complaints of his soldiers, made him at length resolve to venture a general action. With this design he marched into a large plain near the cities of Pharsalia and Thebes; which latter was also called *Philippi*, from Philip king of Macedon, and the father of Perses, who, having reduced the Thebans, placed a colony of Macedonians in their city. This plain was watered by the Enipeus, and surrounded on all sides by high mountains; and Pompey, who was still averse from venturing an engagement, pitched his camp on the declivity of a steep mountain, in a place altogether inaccessible. There he was joined by Scipio his father-in-law, at the head of the legions which he had brought with him from Syria and Cilicia. But notwithstanding this reinforcement, he continued irresolute, and unwilling to put all to the issue of a single action; being still convinced of the wisdom of his maxim, that it was better to destroy the enemy by fatigues and want, than to engage an army of brave veterans, who were in a manner reduced to despair. As he put off from day to day, under various pretences, descending into the plain where Cæsar was encamped, his officers forced him to call a council of war, when all to a man were for venturing a general action the very next day. Thus was Pompey obliged to sacrifice his own judgment to the blind ardour of the multitude; and the necessary measures were taken for a general engagement.

209 Totally defeated. Pharsalia.

The event of this battle was in the highest degree fortunate for Cæsar †; who resolved to pursue his advantage, and follow Pompey to whatever country he should retire. Hearing, therefore, of his being at Amphipolis, he sent off his troops before him, and then embarked on board a little frigate in order to cross the Hellespont; but in the middle of the strait, he fell in with one of Pompey's commanders, at the head of ten ships of war. Cæsar, noway terrified at the superiority of his force, bore up to him, and commanded him to submit. The other instantly obeyed, awed by the terror of Cæsar's name, and surrendered himself and his fleet at discretion.

From thence he continued his voyage to Ephesus, then to Rhodes; and being informed that Pompey had been there before him, he made no doubt but that he was fled to Egypt; wherefore, losing no time, he set sail for that kingdom, and arrived at Alexandria with about 4000 men; a very inconsiderable force to keep such a powerful kingdom under subjection. But he was now grown so secure in his good fortune, that he expected to find obedience everywhere. Upon his landing, the first accounts he received were of Pompey's miserable end, who had been assassinated by orders of the treacherous king as soon as he went on shore; and soon after one of the murderers came with his head and ring as a most grateful present to the conqueror. But Cæsar turned away from it with horror, and shortly after ordered a magnificent tomb to be built to his memory on the spot where he was murdered; and a temple near the place, to Nemesis, who was the goddess that punished those that were cruel to men in adversity.

210 Is murdered in Egypt.

It should seem that the Egyptians by this time had some hopes of breaking off all alliance with the Romans; which they considered, as in fact it was, but a specious subjection. They first began to take offence at Cæsar's carrying the ensigns of Roman power before him as he entered the city. Photinus, the eunuch, also treated him with disrespect, and even attempted his life. Cæsar, however, concealed his resentment till he had a force sufficient to punish his treachery; and sending privately for the legions which had been formerly enrolled for Pompey's service, as being the nearest to Egypt, he in the mean time pretended to repose an entire confidence in the king's minister. However, he soon changed his manner when he found himself in no danger from his attempts; and declared, that, as being a Roman consul, it was his duty to settle the succession to the Egyptian crown.

211 The Egyptians quarrel with Cæsar,

There were at that time two pretenders to the crown of Egypt: Ptolemy, the acknowledged king; and the celebrated Cleopatra his sister: who, by the custom of the country, was also his wife, and, by their father's will, shared jointly in the succession. However, not being contented with a bare participation of power, she aimed at governing alone; but being opposed in her views by the Roman senate, who confirmed her brother's title to the crown, she was banished into Syria with Arsinoe her younger sister.

Cæsar, however, gave her new hopes of obtaining the kingdom, and sent both for her and her brother to plead their cause before him. Photinus, the young king's guardian, who had long borne the most inveterate hatred as well to Cæsar as to Cleopatra, disdained this proposal, and backed his refusal by sending an army of 20,000 men to besiege him in Alexandria. Cæsar bravely repulsed the enemy for some time; but finding the city of too great extent to be defended by so small an army as he then had with him, he retired to the palace, which commanded the harbour, where he purposed to make a stand. Achillas, who commanded the Egyptians, attacked him there with great vigour, and still aimed at making himself master of the fleet that lay before the palace. Cæsar, however, too well knew the importance of those ships in the hands of an enemy; and therefore burnt them all in spite of every effort to prevent it. He next possessed himself of the isle of Pharos, which was the key to the Alexandrian port, by which he was enabled to receive the supplies sent him from all sides; and in this situation he determined to withstand the united force of all the Egyptians.

212 And besiege him in Alexandria.

In the mean time, Cleopatra having heard of the present turn in her favour, resolved to depend rather on Cæsar's favour for gaining the government than her own forces. She had, in fact, assembled an army in Syria to support her claims; but now judged it the wisest way to rely entirely on the decision of her self-elected judge. But no arts, as she justly conceived, were so likely to influence Cæsar, as the charms of her person. The difficulty was how to get at Cæsar, as her enemies were in possession of all the avenues that led to the palace. For this purpose, she went on board a small vessel, and in the evening landed near the palace; where, being wrapped up in a coverlet, she was carried

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carried by one Apollodorus into the very chamber of Cæsar. Her address at first pleased him; but her caresses, which were carried beyond the bounds of innocence, entirely brought him over to second her claims.

While Cleopatra was thus employed in forwarding her own views, her sister Arsinoe was also strenuously engaged in the camp in pursuing a separate interest. She had found means, by the assistance of one Ganymede her confident, to make a large division in the Egyptian army in her favour; and soon after caused Achillas to be murdered, and Ganymede to take the command in his stead, and to carry on the siege with greater vigour than before. Ganymede's principal effort was by letting in the sea upon those canals which supplied the palace with fresh water; but this inconvenience Cæsar remedied by digging a great number of wells. His next endeavour was to prevent the junction of Cæsar's 24th legion, which he twice attempted in vain. He soon after made himself master of a bridge which joined the isle of Pharos to the continent, from which post Cæsar was resolved to dislodge him. In the heat of action, some mariners came and joined the combatants; but being seized with a panic, instantly fled, and spread a general terror through the army. All Cæsar's endeavours to rally his forces were in vain, the confusion was past remedy, and numbers were drowned or put to the sword in attempting to escape; on which, seeing the irremediable disorder of his troops, he retired to a ship in order to get to the palace that was just opposite. However, he was no sooner on board than great crowds entered at the same time with him; upon which, apprehensive of the ship's sinking, he jumped into the sea, and swam 200 paces to the fleet that lay before the palace.

The Alexandrians, finding their efforts to take the palace ineffectual, endeavoured at least to get their king out of Cæsar's power, as he had seized upon his person in the beginning of their disputes. For this purpose they made use of their customary arts of dissimulation, professing the utmost desire for peace, and only wanting the presence of their lawful prince to give a sanction to the treaty. Cæsar, who was sensible of their perfidy, nevertheless concealed his suspicions, and gave them their king, as he was under no apprehensions from the abilities of a boy. Ptolemy, however, the instant he was set at liberty, instead of promoting peace, made every effort to give vigour to hostilities.

213 He is at last relieved.

In this manner Cæsar was hemmed in for some time: but he was at last relieved from this mortifying situation by Mithridates Pergamenus, one of his most faithful partizans; who, collecting a numerous army in Syria, marched into Egypt, took the city of Pelusium, repulsed the Egyptian army with loss, and at last, joining with Cæsar, attacked their camp, and made a great slaughter of the Egyptians. Ptolemy himself, attempting to escape on board a vessel that was sailing down the river, was drowned by the ship's sinking; and Cæsar thus became master of all Egypt without any further opposition. He therefore appointed, that Cleopatra, with her younger brother, who was then but an infant, should jointly govern, according to the intent of their father's will; and drove out Arsinoe with Ganymede into banishment.

Cæsar now for a while seemed to relax from the usual activity of his conduct, captivated with the charms of Cleopatra. Instead of quitting Egypt to go and quell the remains of Pompey's party, he abandoned himself to his pleasures, passing whole nights in feasts with the young queen. He even resolved to attend her up the Nile into Ethiopia; but the brave veterans, who had long followed his fortune, boldly reprehended his conduct, and refused to be partners in so infamous an expedition. Thus, at length, rouzed from his lethargy, he left Cleopatra, by whom he had a son who was afterwards named *Cæsario*, in order to oppose Pharnaces the king of Pontus, who had now made some inroads upon the dominions of Rome. Here he was attended with the greatest success, as we have related under the article Pontus; and having settled affairs in this part of the empire, as well as time would permit, he embarked for Italy, where he arrived sooner than his enemies could expect, but not before his affairs there absolutely required his presence. He had been, during his absence, created consul for five years, dictator for one year, and tribune of the people for life. But Antony, who in the mean time governed in Rome for him, had filled the city with riot and debauchery, and many commotions ensued, which nothing but the arrival of Cæsar could appease. However, by his moderation and humanity, he soon restored tranquillity to the city, scarce making any distinction between those of his own and the opposite party. Thus having, by gentle means, restored his authority at home, he prepared to march into Africa, where Pompey's party had found time to rally under Scipio and Cato, assisted by Juba king of Mauritania. But the vigour of his proceedings had like to have been retarded by a mutiny in his own army. Those veteran legions, who had hitherto conquered all that came before them, began to murmur for not having received the rewards which they had expected for their past services, and now insisted upon their discharge. However, Cæsar found means to quell the mutiny; and then, according to his usual diligence, landed with a small party in Africa, the rest of the army following soon after. After many movements and skirmishes, he resolved at last to come to a decisive battle. For this purpose he invested the city of Tapsus, supposing that Scipio would attempt its relief, which turned out according to his expectation. Scipio, joining with the young king of Mauritania, advanced with his army, and encamping near Cæsar, they soon came to a general battle. Cæsar's success was as usual; the enemy received a complete and final overthrow, with little loss on his side. Juba, and Petreius his general, killed each other in despair; Scipio, attempting to escape by sea into Spain, fell in among the enemy, and was slain; so that, of all the generals of that undone party, Cato was now alone remaining.

214 Arrives in Italy, and soon after undertakes an expedition into Africa.

215 Defeats a party of Pompey's.

This extraordinary man, having retired into Africa after the battle of Pharsalia, had led the wretched remains of that defeat through burning deserts and tracts infested with serpents of various malignity, and was now in the city of Utica, which he had been left to defend. Still, however, in love with even the show of Roman government, he had formed the principal citizens into a senate, and conceived a resolution of holding out the town. He accordingly assembled his senators upon this occasion, and exhorted them to stand a siege; but finding his admonitions ineffectual, he stabbed himself with his sword †. Upon his death, the

216 Cato kills himself.

† See C.

the war in Africa being completed, Cæsar returned in triumph to Rome; and, as if he had abridged all his former triumphs only to increase the splendor of this, the citizens were astonished at the magnificence of the procession, and the number of the countries he had subdued. It lasted four days: the first was for Gaul, the second for Egypt, the third for his victories in Asia, and the fourth for that over Juba in Africa. To every one of his soldiers he gave a sum equivalent to about 150l. of our money, double that sum to the centurions, and four times as much to the superior officers. The citizens also shared his bounty; to every one of whom he distributed 10 bushels of corn, 10 pounds of oil, and a sum of money equal to about two pounds Sterling of ours. He, after this, entertained the people at about 20,000 tables, treated them with the combat of gladiators, and filled Rome with a concourse of spectators from every part of Italy.

The people now seemed eager only to find out new modes of homage and unusual methods of adulation for their great enslaver. He was created, by a new title, *Magister Morum*, or Master of the Morals of the People; he received the title of *Emperor*, *Father of his country*; his person was declared sacred; and, in short, upon him alone were devolved for life all the great dignities of the state. It must be owned, however, that no sovereign could make a better use of his power. He immediately began his empire by repressing vice and encouraging virtue. He communicated the power of judicature to the senators and the knights alone, and by many sumptuary laws restrained the scandalous luxuries of the rich. He proposed rewards to all such as had many children; and took the most prudent methods of repeopling the city, that had been exhausted in the late commotions; and besides his other works, he greatly reformed the kalendar.

Having thus restored prosperity once more to Rome, he again found himself under a necessity of going into Spain, to oppose an army which had been raised there under the two sons of Pompey and Labienus his former general. He proceeded in this expedition with his usual celerity, and arrived in Spain before the enemy thought him yet departed from Rome. Cneius and Sextus, Pompey's sons, profiting by their unhappy father's example, resolved as much as possible to protract the war; so that the first operations of the two armies were spent in sieges and fruitless attempts to surprise each other. At length Cæsar, after taking many cities from the enemy, and pursuing young Pompey with unwearied perseverance, compelled him to come to a battle upon the plains of Munda.

After a most obstinate engagement, Cæsar gained a complete victory (see MUNDA); and having now subdued all his enemies, he returned to Rome for the last time to receive new dignities and honours, and to enjoy an accumulation of all the great offices of the state. Still, however, he pretended to a moderation in the enjoyment of his power; he left the consuls to be named by the people; but as he possessed all the authority of the office, it from this time began to sink into contempt. He enlarged the number of senators also; but as he had previously destroyed their power, their new honours were but empty titles. He took care to pardon all who had been in arms against him, but not till he had deprived them of the power of resistance. He even set up once more the statues of Pompey; which, however, as Cicero observed, he only did to secure his own. The rest of this extraordinary man's life was employed for the advantage of the state. He adorned the city with magnificent buildings; he rebuilt Carthage and Corinth, sending colonies to both cities; he undertook to level several mountains in Italy, to drain the Pontine marshes near Rome, and designed to cut through the Isthmus of Peloponnesus. Thus he formed mighty projects and designs beyond the limits of the longest life; but the greatest of all was his intended expedition against the Parthians, by which he designed to revenge the death of Crassus; then to pass through Hyrcania, and enter Scythia along the banks of the Caspian sea; from thence to open himself a way through the immeasurable forests of Germany into Gaul, and so return to Rome. These were the aims of ambition: but the jealousy of a few individuals put an end to them all.

219 His vast designs.

The senate, with an adulation which marked the degeneracy of the times, continued to load Cæsar with fresh honours, and he continued with equal vanity to receive them. They called one of the months of the year after his name; they stamped money with his image; they ordered his statue to be set up in all the cities of the empire; they instituted public sacrifices on his birth-day; and talked, even in his life-time, of enrolling him in the number of their gods. Antony, at one of their public festivals, foolishly ventured to offer him a diadem; but he put it back again, refusing it several times, and receiving at every refusal loud acclamations from the people. One day, when the senate ordered him some particular honours, he neglected to rise from his seat; and from that moment is said to have been marked for destruction. It began to be rumoured that he intended to make himself king; for though in fact he already was so, the people, who had an utter aversion to the name, could not bear his assuming the title. Whether he really designed to assume that empty honour must now for ever remain a secret; but certain it is, that the unsuspecting openness of his conduct marked something like a confidence in the innocence of his intentions. When informed by those about him of the jealousies of many persons who envied his power, he was heard to say, That he had rather die once by treason, than to live continually in the apprehension of it: and to convince the world how little he had to apprehend from his enemies, he disbanded his company of Spanish guards, which facilitated the enterprise against his life.

220 A conspiracy formed against him.

A deep-laid conspiracy was formed against him, composed of no less than 60 senators. At the head of this conspiracy was Brutus, whose life Cæsar had spared after the battle of Pharsalia, and Cassius, who had been pardoned soon after, both prætors for the present year. Brutus made it his chief glory to have been descended from that Brutus who first gave liberty to Rome; and from a desire of following his example, broke all the ties of private friendship, and entered into a conspiracy which was to destroy his benefactor. Cassius, on the other hand, was impetuous and proud, and hated Cæsar's person still more than his cause. He had often sought an opportunity of gratifying his revenge by assassination, which took rise rather from private than public motives.

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The conspirators, to give a colour of justice to their proceedings, remitted the execution of this design to the ides of March, the day on which it was reported that Cæsar was to be offered the crown. The augurs had foretold that this day would be fatal to him; and the night preceding, he heard his wife Calphurnia lamenting in her sleep, and being awakened, she confessed to him that she dreamt of his being assassinated in her arms. These omens, in some measure, began to change his intentions of going to the senate, as he had resolved, that day; but one of the conspirators coming in, prevailed upon him to keep his resolution, telling him of the reproach which would attend his staying at home till his wife had lucky dreams, and of the preparations that were made for his appearance. As he went along to the senate, a slave, who hastened to him with information of the conspiracy, attempted to come near him, but could not for the crowd. Artemidorus, a Greek philosopher, who had discovered the whole plot, delivered to him a memorial, containing the heads of his information; but Cæsar gave it, with other papers, to one of his secretaries without reading, as was usual in things of this nature. As soon as he had taken his place in the senate, the conspirators came near him, under a pretence of saluting him; and Cimber, who was one of them, approached in a suppliant posture, pretending to sue for his brother's pardon, who was banished by his order. All the conspirators seconded him with great tenderness; and Cimber, seeming to sue with still greater submission, took hold of the bottom of his robe, holding him so as to prevent his rising. This was the signal agreed on. Casca, who was behind, stabbed him, though slightly, in the shoulder. Cæsar instantly turned round, and with the style of his tablet wounded him in the arm. However, all the conspirators were now alarmed; and inclosing him round, he received a second stab from an unknown hand in the breast, while Cassius wounded him in the face. He still defended himself with great vigour, rushing among them, and throwing down such as opposed him, till he saw Brutus among the conspirators, who, coming up, struck his dagger in his thigh. From that moment Cæsar thought no more of defending himself, but looking upon this conspirator, cried out, "And you too, Brutus!" Then covering his head, and spreading his robe before him in order to fall with greater decency, he sunk down at the base of Pompey's statue, after receiving three and twenty wounds, in the 56th year of his age, and 4th of his reign.

221 He is murdered.

222 Great confusion occasioned by his death.

As soon as the conspirators had dispatched Cæsar, they began to address themselves to the senate, in order to vindicate the motives of their enterprise, and to excite them to join in procuring their country's freedom; but all the senators who were not accomplices fled with such precipitation, that the lives of some of them were endangered in the throng. The people also being now alarmed, left their usual occupations, and ran tumultuously through the city; some actuated by their fears, and still more by a desire of plunder. In this state of confusion, the conspirators all retired to the capitol, and guarded its accesses by a body of gladiators which Brutus had in pay. It was in vain they alleged they only struck for freedom, and that they killed a tyrant who usurped the rights of mankind: the people, accustomed to luxury and ease, little regarded their professions, dreading more the dangers of poverty than of subjection.

The friends of the late dictator now began to find that this was the time for coming into greater power than before, and for satisfying their ambition under the veil of promoting justice. Of this number was Antony, whom we have already seen acting as a lieutenant under Cæsar. He was a man of moderate abilities and excessive vices; ambitious of power, but skilled in war, to which he had been trained from his youth. He was consul for this year; and resolved, with Lepidus, who was fond of commotions like himself, to seize this opportunity of assuming the sovereign power. Lepidus, therefore, took possession of the forum with a band of soldiers at his devotion; and Antony, being consul, was permitted to command them. Their first step was to possess themselves of all Cæsar's papers and money; and the next to convene the senate, in order to determine whether Cæsar had been a legal magistrate or a tyrannical usurper, and whether those who killed him merited rewards or punishments. There were many of these who had received their promotions from Cæsar, and had acquired large fortunes in consequence of his appointments: to vote him an usurper, therefore, would be to endanger their property; and yet to vote him innocent, might endanger the state. In this dilemma they seemed willing to reconcile extremes; wherefore they approved all the acts of Cæsar, and yet granted a general pardon to all the conspirators.

223 The conspirators pardoned by the senate.

This decree was very far from giving Antony satisfaction, as it granted security to a number of men who were the avowed enemies of tyranny, and who would be foremost in opposing his schemes of restoring absolute power. As therefore the senate had ratified all Cæsar's acts without distinction, he formed a scheme upon this of making him rule when dead as imperiously as he had done when living. Being, as was said, possessed of Cæsar's books of accounts, he so far gained upon his secretary as to make him insert whatever he thought proper. By these means, great sums of money, which Cæsar never would have bestowed, were here distributed among the people; and every man who was averse to republican principles was here sure of finding a gratuity. He then demanded that Cæsar's funeral obsequies should be performed; which the senate now could not decently forbid, as they had never declared him a tyrant. Accordingly, the body was brought forth into the forum with the utmost solemnity; and Antony began his operations upon the passions of the people, by the prevailing motives of private interest. He first read Cæsar's will, in which he had left Octavius, his sister's grandson, his heir, permitting him to take the name of *Cæsar*; and three parts of his private fortune Brutus was to inherit in case of his death. The Roman people were left the gardens which he had on the other side the Tiber; and every citizen, in particular, was to receive 300 sesterces. This last bequest not a little contributed to increase the people's affection for their late dictator; they now began to consider Cæsar as a father, who, not satisfied with doing them the greatest good while living, thought of benefiting them even after his death. As Antony continued reading, the multitude began to be moved, and sighs and lamentations were heard from every quarter. Antony, seeing the audience favourable

224 Antony inflames the people.

vourable to his designs, now began to address the assembly in a more pathetic strain: he presented before them Cæsar's bloody robe, and, as he unfolded it, took care they should observe the number of stabs in it: he then displayed an image, which to them appeared the body of Cæsar, all covered with wounds. The people could now no longer contain their indignation; they unanimously cried out for revenge; all the old soldiers who had fought under him, burnt, with his body, their coronets, and other marks of conquest with which he had honoured them. A great number of the first matrons in the city threw in their ornaments also; till at length, rage succeeding to sorrow, the multitude ran with flaming brands from the pile to set fire to the conspirators houses. In this rage of resentment, meeting with one Cinna, whom they mistook for another of the same name who was in the conspiracy, they tore him in pieces. The conspirators themselves, however, being well guarded, repulsed the multitude with no great trouble; but perceiving the rage of the people, they thought it safest to retire from the city. Divine honours were then granted him; and an altar was erected on the place where his body was burnt, where afterwards was erected a column inscribed, *To the father of his country*.

In the mean time, Antony, who had excited this flame, resolved to make the best of the occasion. Having gained the people by his zeal in Cæsar's cause, he next endeavoured to bring over the senate, by a seeming concern for the freedom of the state. He therefore proposed to recal Sextus, Pompey's only remaining son, who had concealed himself in Spain since the death of his father: and to grant him the command of all the fleets of the empire. His next step to their confidence, was the quelling a sedition of the people, who rose to revenge the death of Cæsar, and putting their leader Amathus to death, who pretended to be the son of Marius. He after this pretended to dread the resentment of the multitude, and demanded a guard for the security of his person. The senate granted his request; and, under this pretext, he drew round him a body of 6000 resolute men, attached to his interest, and ready to execute his commands. Thus he continued every day making rapid strides to absolute power; all the authority of government was lodged in his hands and those of his two brothers alone, who shared among them the consular, tribunitian, and prætorian power. His vows to revenge Cæsar's death seemed either postponed, or totally forgotten; and his only aim seemed to be to confirm himself in the power which he had thus artfully acquired. But an obstacle to his ambition seemed to arise from a quarter on which he least expected it. This was from Octavius, or Octavianus Cæsar, afterwards called *Augustus*, who was the grand-nephew, and adopted son of Cæsar, and was at Apollonia when his kinsman was slain. He was then about 18 years old, and had been sent to that city to improve himself in the study of Grecian literature. Upon the news of Cæsar's death, notwithstanding the earnest dissuasions of all his friends, he resolved to return to Rome, to claim the inheritance, and revenge the death of his uncle. From the former professions of Antony, he expected to find him a warm assistant to his aims; and he doubted not, by his concurrence, to take signal vengeance on all who had a hand in the conspiracy. However, he was greatly disappointed. Antony, whose projects were all to aggrandize himself, gave him but a very cold reception, and, instead of granting him the fortune left him by the will, delayed the payment of it upon various pretences, hoping to check his ambition by limiting his circumstances. But Octavianus, instead of abating his claims, even sold his own patrimonial estate, to pay such legacies as Cæsar had left, and particularly that to the people. By these means he gained a degree of popularity, which his enemies vainly laboured to diminish, and which in fact he had many other methods to procure. His conversation was elegant and insinuating, his face comely and graceful, and his affection to the late dictator so sincere, that every person was charmed either with his piety or his address. But what added still more to his interest was the name of Cæsar, which he had assumed, and, in consequence of which, the former followers of his uncle now flocked in great numbers to him. All these he managed with such art, that Antony now began to conceive a violent jealousy for the talents of his young opponent, and secretly laboured to counteract all his designs. In fact, he did not want reason; for the army near Rome, that had long wished to see the conspirators punished, began to turn from him to his rival, whom they saw more sincerely bent on gratifying their desires. Antony having procured also the government of Hither Gaul from the people, two of his legions that he had brought home from his former government of Macedonia, went over to Octavianus, notwithstanding all his remonstrances to detain them. This produced, as usual, interviews, complaints, recriminations, and pretended reconciliations, which only tended to widen the difference; so that, at length, both sides prepared for war. Thus the state was divided into three distinct factions; that of Octavianus, who aimed at procuring Cæsar's inheritance, and revenging his death; that of Antony, whose sole view was to obtain absolute power; and that of the conspirators, who endeavoured to restore the senate to its former authority.

Antony being raised by the people to his new government of Cisalpine Gaul, contrary to the inclinations of the senate, resolved to enter upon his province immediately, and oppose Brutus, who commanded a small body of troops there, while his army was yet entire. He accordingly left Rome, and marching thither, commanded Brutus to depart. Brutus, being unable to oppose him, retired with his forces; but being pursued by Antony, he was at last besieged in the city of Mutina, of which he sent word to the senate.

In the mean while, Octavianus, who by this time had raised a body of 10,000 men, returned to Rome; and being resolved, before he attempted to take vengeance on the conspirators, if possible to diminish the power of Antony, began by bringing over the senate to second his designs. In this he succeeded by the credit of Cicero, who had long hated Antony because he thought him the enemy of the state. Accordingly, by means of his eloquence, a decree was passed, ordering Antony to raise the siege of Mutina, to evacuate Cisalpine Gaul, and to await the further orders of the senate upon the banks of the Rubicon. Antony treated the order with contempt; and instead of obeying,

227 A war breaks out between them.

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obeying, began to ſhow his diſpleaſure at being hitherto ſo ſubmiſſive. Nothing now therefore remained for the ſenate but to declare him an enemy to the ſtate, and to ſend Octavianus, with the army he had raiſed, to curb his inſolence. The latter was very ready to offer his army for this expedition, in order to revenge his own private injuries, before he undertook thoſe of the public. The two conſuls, Hirtius and Panſa, joined all their forces; and thus combined, they marched at the head of a numerous army, againſt Antony, into Ciſalpine Gaul. After one or two ineffectual conflicts, both armies came to a general engagement; in which Antony was defeated, and compelled to fly to Lepidus, who commanded a body of forces in Further Gaul. This victory, however, which promiſed the ſenate ſo much ſucceſs, produced effects very different from their expectations. The two conſuls were mortally wounded; but Panſa, previous to his death, called Octavianus to his bed-ſide, and adviſed him to join with Antony, telling him, that the ſenate only deſired to depreſs both, by oppoſing them to each other. The advice of the dying conſul ſunk deep on his ſpirits; ſo that from that time he only ſought a pretext to break with them. Their giving the command of a party of his army to Decimus Brutus, and their denying him a triumph ſoon after, ſerved to alienate his mind entirely from the ſenate, and made him reſolve to join Antony and Lepidus. He was willing, however, to try the ſenate thoroughly, before he came to an open rupture; wherefore he ſent to demand the conſulſhip, which was refuſed him. He then thought himſelf obliged to keep no meaſures with that aſſembly, but privately ſent to ſound the inclinations of Antony and Lepidus, concerning a junction of forces, and found them as eager to aſſiſt as the ſenate was to oppoſe him. Antony was, in fact, the general of both armies, and Lepidus was only nominally ſo, his ſoldiers refuſing to obey him upon the approach of the former. Wherefore, upon being aſſured of the aſſiſtance of Octavianus upon their arrival in Italy, they ſoon croſſed the Alps with an army of 17 legions, breathing revenge againſt all who had oppoſed their deſigns.

The ſenate now began, too late, to perceive their error in diſobliging Octavianus; and therefore gave him the conſulſhip which they had ſo lately refuſed, and, to prevent his joining with Antony, flattered him with new honours, giving him a power ſuperior to all law. The firſt uſe Octavianus made of his new authority was to procure a law for the condemnation of Brutus and Caſſius; after which, he joined his forces with thoſe of Antony and Lepidus.

228 They are reconciled, and divide the empire with Lepidus.

The meeting of theſe three uſurpers of their country's freedom was near Mutina, upon a little iſland of the river Panarus. Their mutual ſuſpicions were the cauſe of their meeting in this place. Lepidus firſt entered, and, finding all things ſafe, made the ſignal for the other two to approach. Octavianus began the conference, by thanking Antony for his zeal in putting Decimus Brutus to death; who, being abandoned by his army, was taken as he was deſigning to eſcape into Macedonia, and beheaded by Antony's command.

229 The ſecond triumvirate.

Their conference laſted for three days; and the reſult of it was, that the ſupreme authority ſhould be lodged in their hands, under the title of the *triumvirate*, for the ſpace of five years; that Antony ſhould have Gaul; Lepidus, Spain; and Octavianus, Africa, and the Mediterranean iſlands. As for Italy, and the eaſtern provinces, they were to remain in common, until their general enemy was entirely ſubdued. But the laſt article of their union was a dreadful one. It was agreed that all their enemies ſhould be deſtroyed; of which each preſented a liſt. In theſe were compriſed not only the enemies, but the friends of the triumvirate, ſince the partiſans of the one were often found among the oppoſers of the others. Thus Lepidus gave up his brother Paulus to the vengeance of his colleague; Antony permitted the proſcription of his uncle Lucius; and Octavianus delivered up the great Cicero. The moſt ſacred rights of nature were violated; 300 ſenators, and above 2000 knights, were included in this terrible proſcription; their fortunes were confiſcated, and their murderers enriched with the ſpoil. Rome ſoon felt the effects of this infernal union, and the horrid cruelties of Marius and Sylla were renewed. As many as could eſcape the cruelty of the triumvirs, fled thither into Macedonia to Brutus, or found refuge with young Pompey, who was now in Sicily, and covered the Mediterranean with his numerous navy. Their cruelties were not aimed at the men alone; but the ſofter ſex were in danger of being marked as objects either of avarice or reſentment. They made out a liſt of 1400 women of the beſt quality, and the richeſt in the city, who were ordered to give in an account of their fortunes, to be taxed in proportion. But this ſeemed ſo unpopular a meaſure, and was ſo firmly oppoſed by Hortenſia, who ſpoke againſt it, that, inſtead of 1400 women, they were content to tax only 400. However, they made up the deficiency, by extending the tax upon men; near 100,000, as well citizens as ſtrangers, were compelled to furniſh ſupplies to the ſubverſion of their country's freedom. At laſt, both the avarice and vengeance of the triumviri ſeemed fully ſatisfied, and they went into the ſenate to declare that the proſcription was at an end; and thus having deluged the city with blood, Octavianus and Antony, leaving Lepidus to defend Rome in their abſence, marched with their army to oppoſe the conſpirators, who were now at the head of a formidable army in Aſia.

230 Cruelt of the umvir

231 They oppoſe Brutus Caſſius

Brutus and Caſſius, the principal of theſe, upon the death of Cæſar, being compelled to quit Rome, went into Greece, where they perſuaded the Roman ſtudents at Athens to declare in the cauſe of freedom; then parting, the former raiſed a powerful army in Macedonia and the adjacent countries, while the latter went into Syria, where he ſoon became maſter of 12 legions, and reduced his opponent Dolabella to ſuch ſtraits as to kill himſelf. Both armies ſoon after joining at Smyrna, the ſight of ſuch a formidable force began to revive the declining ſpirits of the party, and to re-unite the two generals ſtill more cloſely, between whom there had been ſome time before a ſlight miſunderſtanding. In ſhort, having quitted Italy like diſtreſſed exiles, without having one ſingle ſoldier or one town that owned their command, they now found themſelves at the head of a flouriſhing army, furniſhed with all the neceſſaries for carrying on the war, and in a condition to ſupport a conteſt where the empire of the world depended on the event. This ſucceſs in raiſing levies was entirely owing to the juſtice, moderation,

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deration, and great humanity of Brutus, who in every instance seemed studious of the happiness of his country.

It was in this flourishing state of their affairs that the conspirators had formed a resolution of going against Cleopatra, who, on her side, had made great preparations to assist their opponents. However, they were diverted from this purpose by an information that Octavianus and Antony were now upon their march, with 40 legions to oppose them. Brutus now, therefore, moved to have their army pass over into Greece and Macedonia, and there meet the enemy; but Cassius so far prevailed as to have the Rhodians and Lycians first reduced, who had refused their usual contribution. This expedition was immediately put in execution, and extraordinary contributions were raised by that means, the Rhodians having scarce any thing left but their lives *. The Lycians suffered still more severely; for having shut themselves up in the city of Xanthus, they defended the place against Brutus with such fury, that neither his art nor intreaties could prevail upon them to surrender. At length, the town being set on fire, by their attempting to burn the works of the Romans, Brutus, instead of laying hold on this opportunity to storm the place, made every effort to preserve it, intreating his soldiers to try all means of extinguishing the fire: but the desperate phrenzy of the citizens was not to be mollified. Far from thinking themselves obliged to their generous enemy for the efforts which were made to save them, they resolved to perish in the flames. Wherefore, instead of extinguishing, they did all in their power to augment the fire, by throwing in wood, dry reeds, and all kinds of fuel. Nothing could exceed the distress of Brutus upon seeing the townsmen thus resolutely bent on destroying themselves: he rode about the fortifications, stretching out his hands to the Xanthians, and conjuring them to have pity on themselves and their city; but, insensible to his expostulations, they rushed into the flames with desperate obstinacy, and the whole soon became an heap of undistinguishable ruin. At this horrid spectacle, Brutus offered a reward to every soldier who would bring him a Lycian alive. The number of those whom it was possible to save from their own fury amounted to no more than 150.

Brutus and Cassius met once more at Sardis, where, after the usual ceremonies were passed between them, they resolved to have a private conference together, when, after much altercation, they were at last perfectly reconciled. After which, night coming on, Cassius invited Brutus and his friends to an entertainment. Upon retiring home, it was that Brutus, as Plutarch tells the story, saw a spectre in his tent. It was in the dead of the night, when the whole camp was perfectly quiet, that Brutus was employed in reading by a lamp that was just expiring. On a sudden he thought he heard a noise as if somebody entered; and looking towards the door, he perceived it open. A gigantic figure, with a frightful aspect, stood before him, and continued to gaze upon him with silent severity. At last Brutus had courage to speak to it: "Art thou a dæmon or a mortal man? and why comest thou to me?" "Brutus," replied the phantom, "I am thy evil genius, thou shalt see me again at Philippi." "Well then," answered Brutus, without being discomposed, "we shall meet again." Upon which the phantom vanished; and Brutus calling to his servants, asked if they had seen any thing; to which replying in the negative, he again resumed his studies. But as he was struck with so strange an occurrence, he mentioned it the next day to Cassius, who, being an Epicurean, ascribed it to the effect of imagination too much exercised by vigilance and anxiety. Brutus appeared satisfied with this solution of his late terrors; and, as Antony and Octavianus were now advanced into Macedonia, they soon after passed over into Thrace, and advanced to the city of Philippi, near which the forces of the triumvirs were posted.

A battle soon ensued; in which the republicans were defeated, and Cassius killed, as is related in the article PHILIPPI.

The first care of Brutus, when he became the sole general, was to assemble the dispersed troops of Cassius, and animate them with fresh hopes of victory. As they had lost all they possessed by the plundering of their camp, he promised them 2000 denarii each man to make up their losses. This once more inspired them with new ardour; they admired the liberality of their general, and with loud shouts proclaimed his former intrepidity. Still, however, he had not confidence sufficient to face the adversary, who offered him battle the ensuing day. His aim was to starve his enemies, who were in extreme want of provisions, their fleet having been lately defeated. But his single opinion was over-ruled by the rest of his army, who now grew every day more confident of their strength, and more arrogant to their new general. He was, therefore, at last, after a respite of 20 days, obliged to comply with their solicitations to try the fate of the battle. Both armies being drawn out, they remained a long while opposite to each other without offering to engage. It is said that he himself had lost much of his natural ardour by having again seen the spectre the night preceding: however, he encouraged his men as much as possible, and gave the signal for battle within three hours of sun-set. Fortune again declared against him; and the two triumviri expressly ordered by no means to suffer the general to escape, for fear he should renew the war. Thus the whole body of the enemy seemed chiefly intent on Brutus alone, and his capture seemed inevitable. In this deplorable exigence, Lucilius his friend resolved, by his own death, to effect the general's delivery. Upon perceiving a body of Thracian horse closely pursuing Brutus, and just upon the point of taking him, he boldly threw himself in their way, telling them that he was Brutus. The Thracians, overjoyed with so great a prize, immediately dispatched some of their companions, with the news of their success, to the army. Upon which, the ardour of the pursuit now abating, Antony marched out to meet his prisoner; some silently deploring the fate of so virtuous a man; others reproaching that mean desire of life for which he consented to undergo captivity. Antony now seeing the Thracians approach, began to prepare himself for the interview; but the faithful Lucilius, advancing with a cheerful air, owned the deceit that he had put upon him: on which the triumvir, struck with so much fidelity, pardoned him upon the spot; and from that time forward loaded him with benefits, and honoured him with his friendship.

233 The republicans defeated.

234 They are defeated a second time.

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In the mean time Brutus, with a ſmall number of friends, paſſed over a rivulet, and, night coming on, ſat down under a rock which concealed him from the purſuit of the enemy. After taking breath for a little time, he ſent out one Statilius to give him ſome information of thoſe that remained; but he never returned, being killed by a party of the enemy's horſe. Brutus judging very rightly of his fate, now reſolved to die likewiſe, and ſpoke to thoſe who ſtood round him to lend him their laſt ſad aſſiſtance. None of them, however, would render him ſo melancholy a piece of ſervice. At laſt one Strato, averting his head, preſented the ſword's point to Brutus; who threw himſelf upon it, and immediately expired.

235 Brutus kills himſelf.

From the moment of Brutus's death the triumviri began to act as ſovereigns, and to divide the Roman dominions between them, as theirs by right of conqueſt. However, though there were apparently three who thus participated all the power, yet, in fact, only two were actually poſſeſſed of it; ſince Lepidus was at firſt admitted merely to curb the mutual jealouſy of Antony and Octavianus, and was poſſeſſed neither of intereſt in the army nor authority among the people. Their firſt care was to puniſh thoſe whom they had formerly marked for vengeance. The head of Brutus was ſent to Rome to be thrown at the foot of Cæſar's ſtatue. His aſhes, however, were ſent to his wife Porcia, Cato's daughter, who afterwards killed herſelf by ſwallowing burning coals. It is obſerved, that of all thoſe who had a hand in the death of Cæſar, not one died a natural death.

236 Antony's extravagance.

The power of the triumviri being thus eſtabliſhed upon the ruins of the commonwealth, Antony went into Greece, and ſpent ſome time at Athens, converſing among the philoſophers, and aſſiſting at their diſputes in perſon. From thence he paſſed over into Aſia, where all the monarchs of the eaſt, who acknowledged the Roman power, came to pay him their obedience. In this manner he proceeded from kingdom to kingdom, attended by a crowd of ſovereigns, exacting contributions, diſtributing favours, and giving away crowns with capricious inſolence. He preſented the kingdom of Cappadocia to Syſenes, in prejudice of Ariarathes, only becauſe he found pleaſure in the beauty of Glaphyra, the mother of the former. He ſettled Herod in the kingdom of Judea, and ſupported him againſt every oppoſer. But among all the ſovereigns of the eaſt who ſhared his favours, none had ſo large a part as Cleopatra, the celebrated queen of Egypt.

It happened that Serapion, her governor in the iſland of Cyprus, had formerly furniſhed ſome ſuccours to the conſpirators; and it was thought proper that ſhe ſhould anſwer for his conduct on that occaſion. Accordingly, having received orders from Antony to come and clear herſelf of this imputation of infidelity, ſhe readily complied, equally conſcious of the goodneſs of her cauſe and the power of her beauty. She had already experienced the force of her charms upon Cæſar and Pompey's eldeſt ſon; and the addition of a few years ſince that time had not impaired their luſtre. Antony was now in Tarſus, a city of Cilicia, when Cleopatra reſolved to attend his court in perſon. She ſailed down the river Cydnus, at the mouth of which the city ſtood, with the moſt ſumptuous pageantry. Her galley was covered with gold; the ſails were of purple, large, and floating in the wind. The oars of ſilver kept tune to the ſound of flutes and cymbals. She herſelf lay reclined on a couch ſpangled with ſtars of gold, and with ſuch ornaments as poets and painters had uſually aſcribed to Venus. On each ſide were boys like Cupids, who fanned her by turns; while the moſt beautiful nymphs, dreſſed like Nereids and Graces, were placed at proper diſtances around her. Upon the banks of the river were kept burning the moſt exquiſite perfumes, while an infinite number of people gazed upon the ſight. Antony was captivated with her beauty; and, leaving all his buſineſs to ſatisfy his paſſion, ſhortly after followed her into Egypt.

237 Hatred in interview with Cleopatra.

While he thus remained idle, Octavianus, who took upon him to lead back the veteran troops and ſettle them in Italy, was aſſiduouſly employed in providing for their ſubſiſtence. He had promiſed them lands at home, as a recompenſe for their paſt ſervices; but they could not receive new grants, without turning out the former inhabitants. In conſequence of this, multitudes of women, with children in their arms, whoſe tender years and innocence excited univerſal compaſſion, daily filled the temples and the ſtreets with their diſtreſſes. Numbers of huſbandmen and ſhepherds came to deprecate the conqueror's intention, or to obtain an habitation in ſome other part of the world. Amongſt this number was Virgil the poet, who in an humble manner begged permiſſion to retain his patrimonial farm: Virgil obtained his requeſt; but the reſt of his countrymen, of Mantua and Cremona, were turned out without mercy.

238 Miſeries ſuſtained by the Romans.

Italy and Rome now felt the moſt extreme miſeries; the inſolent ſoldiers plundered at will; while Sextus Pompey, being maſter of the ſea, cut off all foreign communication, and prevented the people's receiving their uſual ſupplies of corn. To theſe miſchiefs were added the commencement of another civil war. Fulvia, the wife of Antony, who had been left behind him at Rome, had felt for ſome time all the rage of jealouſy, and reſolved to try every method of bringing back her huſband from the arms of Cleopatra. She conſidered a breach with Octavianus as the only probable means of rouſing him from his lethargy; and accordingly, with the aſſiſtance of Lucius her brother-in-law, who was then conſul, and entirely devoted to her intereſt, ſhe began to ſow the ſeeds of diſſenſion. The pretext was, that Antony ſhould have a ſhare in the diſtribution of lands as well as Octavianus. This produced ſome negociations between them; Octavianus offered to make the veterans themſelves umpires in the diſpute. Lucius refuſed to acquieſce; and being at the head of more than ſix legions, mostly compoſed of ſuch as had been diſpoſſeſſed of their lands, he reſolved to compel Octavianus to accept of whatever terms he ſhould offer. Thus a new war was excited between Octavianus and Antony; or, at leaſt, the generals of the latter aſſumed the ſanction of his name. Octavianus, however, proved victorious: Lucius was hemmed in between two armies, and conſtrained to retreat to Perugia, a city of Etruria, where he was cloſely beſieged by the oppoſite party. He made many deſperate ſallies, and Fulvia did all in her power to relieve him, but without ſucceſs. He was at laſt, therefore, reduced to ſuch extremity by famine, that he came out in perſon and delivered himſelf up to the mercy of the conqueror. Octavianus received him very honourably, and generouſly pardoned him and all his followers. Thus having concluded

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cluded the war in a few months, he returned in triumph to Rome.

Antony, who, during this interval, was revelling in all the ſtudied luxuries procured him by his inamorata miſtreſs, having heard of his brother's overthrow, and his wife's being compelled to leave Italy, was reſolved to oppoſe Octavianus without delay. He accordingly ſailed at the head of a conſiderable fleet from Alexandria to Tyre, from thence to Cyprus and Rhodes, and had an interview with Fulvia his wife at Athens. He much blamed her for occaſioning the late diſorders, teſtified the utmoſt contempt for her perſon, and, leaving her upon her death-bed at Sycion, haſtened into Italy to fight Octavianus. They both met at Brundiſium; and it was now thought that the flames of a civil war were going to blaze out once more. The forces of Antony were numerous, but moſtly newly raiſed; however, he was aſſiſted by Sextus Pompeius, who in theſe oppoſitions of intereſts was daily coming into power. Octavianus was at the head of thoſe veterans who had always been irreſiſtible, but who ſeemed no way diſpoſed to fight againſt Antony their former general. A negociation was therefore propoſed; and a reconciliation was effected. All offences and affronts were mutually forgiven; and to cement the union, a marriage was concluded between Antony and Octavia, the ſiſter of Octavianus. A new diviſion of the Roman empire was made between them; Octavianus was to have the command of the weſt, Antony of the eaſt, while Lepidus was obliged to content himſelf with the provinces in Africa. As for Sextus Pompeius, he was permitted to retain all the iſlands he had already poſſeſſed, together with Peloponneſus: he was alſo granted the privilege of demanding the conſulſhip in his abſence, and of diſcharging that office by any of his friends. It was likewiſe ſtipulated to leave the ſea open, and pay the people what corn was due out of Sicily. Thus a general peace was concluded, to the great ſatisfaction of the people, who now expected a ceſſation from all their calamities.

39 Triumvirate new.

This calm ſeemed to continue for ſome time: Antony led his forces againſt the Parthians, over whom his lieutenant, Ventidius, had gained great advantages. Octavianus drew the greateſt part of his army into Gaul, where there were ſome diſturbances; and Pompey went to ſecure his newly ceded province to his intereſt. It was on this quarter that freſh motives were given for renewing the war. Antony, who was obliged by treaty to quit Peloponneſus, refuſed to evacuate it till Pompey had ſatisfied him for ſuch debts as were due to him from the inhabitants. This Pompey would by no means comply with; but immediately fitted out a new fleet, and renewed his former enterpriſes, by cutting off ſuch corn and proviſions as were conſigned to Italy. Thus the grievances of the poor were again renewed; and the people began to complain, that inſtead of three tyrants they were now oppreſſed by four.

In this exigence, Octavianus, who had long meditated the beſt means of diminiſhing the number, reſolved to begin by getting rid of Pompey, who kept the ſtate in continual alarms. He was maſter of two fleets; one of which he had cauſed to be built at Ravenna; and another which Menodorus, who revolted from Pompey, brought to his aid. His firſt attempt was to invade Sicily; but being overpowered in his paſſage by Pompey, and afterwards ſhattered in a ſtorm, he was obliged to defer his deſigns to the enſuing year. During this interval he was reinforced by a fleet of 120 ſhips, given him by Antony, with which he reſolved once more to invade Sicily on three ſeveral quarters. But fortune ſeemed ſtill determined to oppoſe him. He was a ſecond time diſabled and ſhattered by a ſtorm: which ſo raiſed the vanity of Pompey, that he began to ſtyle himſelf the *Son of Neptune*. However, Octavianus was not to be intimidated by any diſgraces; for having ſhortly refitted his navy, and recruited his forces, he gave the command of both to Agrippa, his faithful friend and aſſociate in war. Agrippa proved himſelf worthy of the truſt repoſed in him: he began his operations by a victory over Pompey; and, though he was ſhortly after worſted himſelf, he ſoon after gave his adverſary a complete and final overthrow. Thus undone, Pompey reſolved to fly to Antony, from whom he expected refuge, as he had formerly obliged that triumvir by giving protection to his mother. However, he tried once more, at the head of a ſmall body of men, to make himſelf independent, and even ſurpriſed Antony's officers who had been ſent to accept of his ſubmiſſions. Nevertheleſs, he was at laſt abandoned by his ſoldiers, and delivered up to Titus, Antony's lieutenant, who ſhortly after cauſed him to be ſlain.

240 Sextus Pompeius defeated and taken priſoner.

The death of this general removed one very powerful obſtacle to the ambition of Octavianus, and he reſolved to take the earlieſt opportunity to get rid of the reſt of his aſſociates. An offence was ſoon furniſhed by Lepidus, that ſerved as a ſufficient pretext for depriving him of his ſhare in the triumvirate. Being now at the head of 22 legions, with a ſtrong body of cavalry, he idly ſuppoſed that his preſent power was more than an equivalent to the popularity of Octavianus. He therefore reſolved upon adding Sicily, where he then was, to his province; pretending a right, as having firſt invaded it. His colleague ſent to expoſtulate upon theſe proceedings; but Lepidus fiercely replied, 'that he was determined to have his ſhare in the adminiſtration, and would no longer ſubmit to let one alone poſſeſs all the authority.' Octavianus was previouſly informed of the diſpoſition of Lepidus's ſoldiers; for he had, by his ſecret intrigues and largeſſes, entirely attached them to himſelf. Wherefore, without further delay, he with great boldneſs went alone to the camp of Lepidus, and with no other aſſiſtance than his private bounties, and the authority he had gained by his former victories, he reſolved to depoſe his rival. The ſoldiers thronged round him with the moſt dutiful alacrity, while Lepidus haſtened to prevent their defection. But Octavianus, though he received a wound from one of the centurions, went with great preſence of mind to the place where the military enſigns were planted, and, flourriſhing one of them in the air, all the legionary ſoldiers ran in crowds and ſaluted him as their general. Lepidus being thus abandoned by his men, diveſted himſelf of all the marks of his authority, which he could no longer keep, and ſubmiſſively threw himſelf at the feet of Octavianus. This general ſpared his life, notwithſtanding the remonſtrances of his army; but deprived him of all his former authority, and baniſhed him to Circæum.

242 Lepidus defeated and baniſhed.

Octavianus was received upon his return to Rome with univerſal joy: the ſenators met him at the gates,

and conducted him to the capitol: the people followed, crowned with garlands of flowers; and after having returned thanks to the gods, waited upon him to his palace. There remained now but one obstacle to his ambition, which was Antony, whom he resolved to remove, and for that purpose began to render his character as contemptible as he possibly could at Rome. In fact, Antony's conduct did not a little contribute to promote the endeavours of his ambitious partner in the state. He had marched against the Parthians with a prodigious army; but was forced to return with the loss of the fourth part of his forces, and all his baggage *. This extremely diminished his reputation; but his making a triumphal entry into Alexandria soon after, entirely disgusted the citizens of Rome. However, Antony seemed quite regardless of their resentment: totally disregarding the business of the state, he spent whole days and nights in the company of Cleopatra, who studied every art to increase his passion, and vary his entertainments. Not contented with sharing in her company all the delights which Egypt could afford, Antony was resolved to enlarge his sphere of luxury, by granting her many of those kingdoms which belonged to the Roman empire. He gave her all Phœnicia, Celo-Syria, and Cyprus; with a great part of Cilicia, Arabia, and Judea; gifts which he had no right to bestow, but which he pretended to grant in imitation of Hercules. This complication of vice and folly at length totally exasperated the Romans; and Octavianus, willing to take advantage of their resentment, took care to exaggerate all his defects. At length, when he found the people sufficiently irritated against him, he resolved to send Octavia, who was then at Rome, to Antony, as if with a view of reclaiming her husband; but, in fact, to furnish a sufficient pretext of declaring war against him, as he knew she would be dismissed with contempt.

242 Antony's imprudent conduct.

* See *Parthia*.

Antony was now in the city of Leucopolis, revelling with his insidious paramour, when he heard that Octavia was at Athens, upon her journey to visit him. This was very unwelcome news to him as well as to Cleopatra; who, fearing the charms of her rival, endeavoured to convince Antony of the strength of her passion. He frequently caught her in tears, which she seemed as if willing to hide; and often intreated her to tell him the cause, which she seemed willing to suppress. These artifices, together with the ceaseless flattery and importunity of her creatures, prevailed so much upon Antony's weakness, that he commanded Octavia to return home without seeing her, and attached himself still more closely to Cleopatra than before. His ridiculous passion now began to have no bounds. He resolved to own her for his wife, and entirely to repudiate Octavia. He accordingly assembled the people of Alexandria in the public theatre, where was raised an alcove of silver, under which were placed two thrones of gold, one for himself and the other for Cleopatra. There he seated himself, dressed like Bacchus, while Cleopatra sat beside him clothed in the ornaments and attributes of Isis, the principal deity of the Egyptians. On that occasion he declared her queen of all the countries which he had already bestowed upon her; while he associated Cæsario, her son by Cæsar, as her partner in the government. To the two children which he had by her himself he gave the title of *king of kings*, with very extensive dominions; and, to crown his absurdities, he sent a minute account of his proceedings to the two consuls at Rome. It was now necessary to act up to his imaginary dignity; new luxuries and pageantries were now therefore studied, and new marks of profusion found out: not less than 60,000l. of our money were lavished upon one single entertainment; it is said, upon this occasion, that Cleopatra dissolved a pearl of great value in vinegar, and drank it off. But we are told of one circumstance that might well repress their delights, and teach mankind to relish the beverage of virtue, however simple, above their greatest luxuries. He was suspicious of being poisoned in every meal; he feared Cleopatra, whom he so much loved, and would eat nothing without having it previously tasted by one of his attendants.

243 Divorces Octavia, and marries Cleopatra.

244 Octavian resolves to make war upon his

In the mean time Octavianus had now a sufficient pretext for declaring war; and informed the senate of his intentions. However, he deferred the execution of his design for a while, being then employed in quelling an insurrection of the Illyrians. The following year was chiefly taken up in preparations against Antony, who, perceiving his design, remonstrated to the senate, that he had many causes of complaint against his colleague, who had seized upon Sicily without offering him a share; alleging that he had also dispossessed Lepidus, and kept to himself the province he had commanded; and that he had divided all Italy among his own soldiers, leaving nothing to recompense those in Asia. To this complaint Octavianus was contented to make a sarcastic answer; implying, that it was absurd to complain of his distribution of a few trifling districts in Italy, when Antony having conquered Parthia, he might now reward his soldiers with cities and provinces. The sarcasm upon Antony's misfortunes in Parthia so provoked him, that he ordered Canidius, who commanded his army, to march without intermission into Europe; while he and Cleopatra followed to Samos, in order to prepare for carrying on the war with vigour. When arrived there, it was ridiculous enough to behold the odd mixture of preparations for pleasure and for war. On one side all the kings and princes from Europe to the Euxine sea had orders to send him thither supplies both of men, provisions, and arms; on the other side, all the comedians, dancers, buffoons, and musicians of Greece, were ordered to attend him. Thus, frequently, when a ship was thought to arrive laden with soldiers, arms, and ammunition, it was found only filled with players and theatrical machinery. When news was expected of the approach of an army, messengers only arrived with tidings of a fresh quantity of venison. The kings who attended him endeavoured to gain his favour more by their entertainments than their warlike preparations; the provinces strove rather to please him by sacrificing to his divinity, than by their alacrity in his defence; so that some were heard to say, "What rejoicings would not this man make for a victory, when he thus triumphs at the eve of a dangerous war!" In short, his best friends now began to forsake his interests.

His delay at Samos, and afterwards at Athens, where he carried Cleopatra to receive new honours, was extremely favourable to the arms of Octavianus. This general was at first scarcely in a disposition to oppose him, had he gone into Italy; but he soon found time

to put himself in a condition for carrying on the war, and shortly after declared it against him in form. All Antony's followers were invited over to join him, with great promises of rewards: but they were not declared enemies, partly to prevent their growing desperate, and partly to give a show of moderation to his own party. At length both found themselves in readiness to begin the war, and their armies were answerable to the empire they contended for. The one was followed by all the forces of the east; the other drew all the strength of the west to support his pretensions. Antony's force composed a body of 100,000 foot and 12,000 horse; while his fleet amounted to 500 ships of war. The army of Octavianus mustered but 80,000 foot, but equalled his adversary's in his number of cavalry: his fleet was but half as numerous as Antony's; however, his ships were better built, and manned with better soldiers.

The great decisive engagement, which was a naval at one, was fought near Actium, a city of Epirus, at the entrance of the gulph of Ambracia. Antony ranged his ships before the mouth of the gulph; and Octavianus drew up his fleet in opposition. Neither general assumed any fixed station to command in; but went about from ship to ship wherever his presence was necessary. In the mean time, the two land armies, on opposite sides of the gulph, were drawn up, only as spectators of the engagement; and encouraged the fleets by their shouts to engage. The battle began on both sides with great ardour, and after a manner not practised upon former occasions. The prows of their vessels were armed with brazen points; and with these they drove furiously against each other. In this conflict the ships of Antony came with greater force, but those of Octavianus avoided the shock with greater dexterity. On Antony's side, the sterns of the ships were raised in form of a tower; from whence they threw arrows from machines for that purpose. Those of Octavianus made use of long poles hooked with iron, and fire-pots. They fought in this manner for some time with equal animosity; nor was there any advantage on either side, except a small appearance of disorder in the centre of Antony's fleet. But all of a sudden Cleopatra determined the fortune of the day. She was seen flying from the engagement attended by 60 sail; struck, perhaps, with the terrors natural to her sex: but what increased the general amazement was, to behold Antony himself following soon after, and leaving his fleet at the mercy of the conquerers. The engagement, notwithstanding, continued with great obstinacy till five in the evening; when Antony's forces, partly constrained by the conduct of Agrippa, and partly persuaded by the promises of Octavianus, submitted to the conqueror. The land-forces soon after followed the example of the navy; and all yielded to the conqueror without striking a blow the fourth day after the battle.

When Cleopatra fled, Antony pursued her in a five-oared galley; and coming along-side of her ship entered, without seeing or being seen by her. She was in the stern, and he went to the prow, where he remained for some time silent, holding his head between his hands. In this manner he continued three whole days; during which, either through indignation or shame, he neither saw nor spoke to Cleopatra. At last, when they were arrived at the promontory of Tenarus, the queen's female attendants reconciled them, and every thing went on as before. Still, however, he had the consolation to suppose his army continued faithful to him; and accordingly dispatched orders to his lieutenant Canidius to conduct it into Asia. However, he was soon undeceived when he arrived in Africa, where he was informed of their submission to his rival. This account so transported him with rage, that he was hardly prevented from killing himself; but at length, at the entreaty of his friends, he returned to Alexandria, in a very different situation from that in which he had left it some time before. Cleopatra, however, seemed to retain that fortitude in her misfortunes which had utterly abandoned her admirer. Having amassed considerable riches by means of confiscation and other acts of violence, she formed a very singular and unheard of project; this was to convey her whole fleet over the isthmus of Suez into the Red Sea, and thereby save herself in another region beyond the reach of Rome, with all her treasures. Some of her vessels were actually transported thither, pursuant to her orders; but the Arabians having burnt them, and Antony dissuading her from the design, she abandoned it for the more improbable scheme of defending Egypt against the conqueror.— She omitted nothing in her power to put his advice in practice, and made all kinds of preparations for war; at least hoping thereby to obtain better terms from Octavianus. In fact, she had always loved Antony's fortunes rather than his person; and if she could have fallen upon any method of saving herself, though even at his expence, there is no doubt but she would have embraced it with gladness. She even still had some hopes from the power of her charms, though she was arrived almost at the age of 40; and was desirous of trying upon Octavianus those arts which had been so successful with the greatest men of Rome. Thus, in three embassies which were sent one after another from Antony to his rival in Asia, the queen had always her secret agents, charged with particular proposals in her name. Antony desired no more than that his life might be spared, and to have the liberty of passing the remainder of his days in obscurity. To these proposals Octavianus made no reply. Cleopatra sent him also public proposals in favour of her children; but at the same time privately resigned him her crown, with all the ensigns of royalty. To the queen's public proposal no answer was given; to her private offer he replied, by giving her assurances of his favour in case she sent away Antony or put him to death. These negociations were not so private but they came to the knowledge of Antony, whose jealousy and rage was now heightened by every concurrence. He built a small solitary house upon a mole in the sea; and there he passed his time, shunning all commerce with mankind, and professing to imitate Timon the man-hater. However, his furious jealousy drove him even from this retreat into society; for hearing that Cleopatra had many secret conferences with one Thyrsus, an emissary from Octavianus, he seized upon him, and having ordered him to be cruelly scourged, he sent him back to his patron. At the same time he sent letters by him, importing, that he had chastised Thyrsus for insulting a man in his misfortunes; but withal he gave his rival permission to avenge himself, by scourging Hiparchus, Antony's freedman, in the same manner. The revenge, in this case, would have been

Rome.

246 He resolves to defend Egypt against the conqueror.

Rome.

been highly pleasing to Antony, as Hiparchus had left him to join the fortunes of his more successful rival.

Meanwhile, the operations of the war were carried vigorously forward, and Egypt was once more the theatre of the contending armies of Rome. Gallus, the lieutenant of Octavianus, took Paretonium, which opened the whole country to his incursions. On the other side, Antony, who had still considerable forces by sea and land, wanted to take that important place from the enemy. He therefore marched towards it, flattering himself, that as soon as he should show himself to the legions which he had once commanded, their affection for their ancient general would revive. He approached, therefore, and exhorted them to remember their former vows of fidelity. Gallus, however, ordered all the trumpets to sound, in order to hinder Antony from being heard, so that he was obliged to retire.

247 Pelusium given up to Octavianus.

Octavianus himself was in the mean time advancing with another army before Pelusium, which, by its strong situation, might have retarded his progress for some time. But the governor of the city, either wanting courage to defend it, or previously instructed by Cleopatra to give it up, permitted him to take possession of the place; so that Octavianus had now no obstacle in his way to Alexandria, whither he marched with all expedition. Antony, upon his arrival, sallied out to oppose him, fighting with great desperation, and putting the enemy's cavalry to flight. This slight advantage once more revived his declining hopes; and, being naturally vain, he re-entered Alexandria in triumph. Then going, all armed as he was, to the palace, he embraced Cleopatra, and presented her a soldier who had distinguished himself in the late engagement. The queen rewarded him very magnificently; presenting him with an head-piece and breast-plate of gold. With these, however, the soldier went off the next night to the other army. Antony could not bear this defection without fresh indignation; he resolved, therefore, to make a bold expiring effort by sea and land, but previously offered to fight his adversary in single combat. Octavianus too well knew the inequality of their situations to comply with this forlorn offer; he only, therefore, coolly replied, that Antony had ways enough to die besides single combat.

248 Antony deserted by his fleet.

The evening before the day appointed for the last desperate attempt, he ordered a grand entertainment to be prepared. At day-break he posted the few troops he had remaining upon a rising ground near the city: from whence he sent orders to his galleys to engage the enemy. There he waited to be a spectator of the combat; and, at first, he had the satisfaction to see them advance in good order; but his approbation was soon turned into rage, when he saw his ships only saluting those of Octavianus, and both fleets uniting together, and sailing back into the harbour. At the very same time his cavalry deserted him. He tried, however, to lead on his infantry; which were easily vanquished, and he himself compelled to return into the town. His anger was now ungovernable; he could not help crying out aloud as he passed, that he was betrayed by Cleopatra, and delivered by her to those who, for her sake alone, were his enemies. In these suspicions he was not deceived; for it was by secret orders from the queen that the fleet had passed over to the enemy.

Cleopatra had, for a long while, dreaded the effects of Antony's jealousy; and had, some time before, prepared a method of obviating any sudden sallies it might produce. Near the temple of Isis she had erected a building, which was seemingly designed for a sepulchre. Hither she removed all her treasure and most valuable effects, covering them over with torches, faggots, and other combustible matter. This sepulchre she designed to answer a double purpose; as well to screen her from the sudden resentments of Antony, as to make Octavianus believe that she would burn all her treasures in case he refused her proper terms of capitulation. Here, therefore, she retired from Antony's present fury; shutting the gates, which were fortified with bolts and bars of iron: but in the mean time gave orders that a report should be spread of her death.—This news, which soon reached Antony, recalled all his former love and tenderness. He now lamented her death with the same violence he had but a few minutes before seemed to desire it; and called one of his freedmen, named *Eros*, whom he had engaged by oath to kill him whenever fortune should drive him to this last resource. Eros being now commanded to perform his promise, this faithful follower drew the sword, as if going to execute his orders; but turning his face, plunged it into his own bosom, and died at his master's feet. Antony for a while hung over his faithful servant, and, commending his fidelity, took up the sword, with which stabbing himself in the belly, he fell backward upon a little couch. Though the wound was mortal, yet the blood stopping he recovered his spirits, and earnestly conjured those who were come into the room to put an end to his life; but they all fled, being seized with fright and horror. He therefore continued in agonies for some time; till he was informed by one of the queen's secretaries that his mistress was still alive. He then earnestly desired to be carried to the place where she was. They accordingly brought him to the gate of the sepulchre; but Cleopatra, who would not permit it to be opened, appeared at the window, and threw down cords in order to pull him up. In this manner, assisted by her two female attendants, she raised him all bloody from the ground; and while yet suspended in the air, he continued stretching out his hands to encourage her. Cleopatra and her maids had only just strength sufficient to raise him; and at last, with much straining, they effected their purpose, and carried him to a couch, on which they gently laid him. Here she gave way to her sorrow, tearing her clothes, beating her breast, and kissing the wound of which he was dying. She called upon him as her lord, her husband, her emperor, and seemed to have forgot her own distresses in the greatness of his sufferings. Antony entreated her to moderate the transports of her grief, and asked for some wine. After he had drank, he entreated Cleopatra to endeavour to preserve her life, if she could do it with honour; and recommended Proculus, a friend of Octavianus, as one she might rely on to be her intercessor. Just as he had done speaking, he expired; and Proculus made his appearance by command of Octavianus, who had been informed of Antony's desperate conduct. He was sent to try all means of getting Cleopatra into his power; his master having a double motive for his solicitude on this occasion; one, to prevent her destroying the treasures she had taken with her into the tomb; the other, to

249 Stabs himself with sword.

250 He dies.

to preſerve her perſon as an ornament to grace his triumph. Cleopatra, however, was upon her guard, and would not confer with Proculus, except through the gate, which was well ſecured. In the mean time, while he deſignedly drew out the conference to ſome length, and had given Gallus, one of his fellow-ſoldiers, directions to carry on the converſation in his abſence, he entered with two more by the window at which Antony had been drawn up. As ſoon as he was entered, he ran down to the gate; and one of the women crying out, that they were taken alive, Cleopatra, perceiving what had happened, drew a poniard, and attempted to ſtab herſelf; but Proculus prevented the blow, and gently remonſtrated that ſhe was cruel in refuſing ſo good a prince as his maſter was the pleaſure of diſplaying his clemency. He then forced the poniard out of her hand, and examined her clothes to be certain ſhe had no poiſon about her. Thus leaving every thing ſecured, he went to acquaint his maſter with his proceedings.

Octavianus was extremely pleaſed at finding her in his power: he ſent Epaphroditus to bring her to his palace, and to watch her with the utmoſt circumſpection. He was likewiſe ordered to uſe her, in every reſpect, with that deference and ſubmiſſion which were due to her rank, and to do every thing in his power to render her captivity agreeable. She was permitted to have the honour of granting Antony the rites of burial, and furniſhed with every thing ſhe deſired, that was becoming his dignity to receive, or her love to offer. Yet ſtill ſhe languiſhed under her new confinement. Her exceſſive ſorrow, her many loſſes, and the blows ſhe had given her boſom, produced a fever which ſhe ſeemed willing to increaſe. She reſolved to abſtain from taking any nouriſhment, under the pretence of a regimen neceſſary for her diſorder; but Octavianus being made acquainted with the real motive by her phyſician, began to threaten her with regard to her children, in caſe ſhe perſiſted. This was the only puniſhment that could now affect her; ſhe allowed herſelf to be treated as they thought proper, and received whatever was preſcribed for her recovery.

In the mean time Octavianus made his entry into Alexandria; taking care to mitigate the fears of the inhabitants, by converſing familiarly as he went along with Areus, a philoſopher, and a native of the place. The citizens, however, trembled at his approach; and when he placed himſelf upon the tribunal, they proſtrated themſelves, with their faces to the ground, before him, like criminals who waited the ſentence of their execution. Octavianus preſently ordered them to riſe; telling them, that three motives induced him to pardon them: his reſpect for Alexander, who was the founder of their city; his admiration of its beauty; and his friendſhip for Areus, their fellow-citizen. Two only of particular note were put to death upon this occaſion; Antony's eldeſt ſon Antyllus, and Cæſario, the ſon of Julius Cæſar; both betrayed into his hands by their reſpective tutors, who themſelves ſuffered for their perfidy ſhortly after. As for the reſt of Cleopatra's children, he treated them with great gentleneſs, leaving them to the care of thoſe who were entruſted with their education, who had orders to provide them with every thing ſuitable to their birth. When ſhe was recovered from her late indiſpoſition, he came to viſit her in perſon.—Cleopatra had been preparing for this interview, and made uſe of every method ſhe could think of to propitiate the conqueror, and to gain his affection; but in vain. However, at his departure, Octavianus imagined that he had reconciled her to life, and to the indignity of being ſhown in the intended triumph, which he was preparing for on his return to Rome: but in this he was deceived. Cleopatra, all this time, had kept a correſpondence with Dolabella, a young Roman of high birth, in the camp of Octavianus; who, perhaps, from compaſſion, or ſtronger motives, was intereſted in the misfortunes of that princeſs. From him ſhe learnt the intentions of Octavianus, and that he was determined to ſend her off in three days, together with her children, to Rome. She now therefore determined upon dying; but previouſly intreated permiſſion to pay her oblations at Antony's tomb. This requeſt being granted her, ſhe was carried with her two female attendants to the ſtately monument where he was laid. There ſhe threw herſelf upon his coffin, bewailed her captivity, and renewed her proteſtations not to ſurvive him. She then crowned the tomb with garlands of flowers; and having kiſſed the coffin a thouſand times, ſhe returned home to execute her fatal reſolution. Having bathed, and ordered a ſumptuous banquet, ſhe attired herſelf in the moſt ſplendid manner. She then feaſted as uſual; and ſoon after ordered all but her two attendants, Charmion and Iras, to leave the room. Then, having previouſly ordered an aſp to be ſecretly conveyed to her in a baſket of fruit, ſhe ſent a letter to Octavianus, informing him of her fatal purpoſe, and deſiring to be buried in the ſame tomb with Antony. Octavianus, upon receiving this letter, inſtantly diſpatched meſſengers to prevent her, but they arrived too late. Upon entering the chamber, they beheld Cleopatra lying dead upon a gilded couch, arrayed in her royal robes. Near her, Iras, one of her faithful attendants, was ſtretched lifeleſs at the feet of her miſtreſs: and Charmion herſelf, almoſt expiring, was ſettling the diadem upon Cleopatra's head. She died at the age of thirty-nine, after having reigned twenty-two years. Her death put an end to the monarchy in Egypt, which had flouriſhed there from time immemorial.

Rome. 252 Her death.

Octavianus ſeemed much troubled at Cleopatra's death, as it deprived him of a principal ornament in his intended triumph. However, the manner of it a good deal exalted her character among the Romans, with whom ſuicide was conſidered as a virtue. Her dying requeſt was complied with, her body being laid by Antony's, and a magnificent funeral prepared for her and her two faithful attendants.

After having ſettled the affairs of Egypt, he left Alexandria in the beginning of September, in the year of Rome 720, with a deſign to return through Syria, Aſia Minor, and Greece, to Italy. On his arrival at Antioch, he found there Tiridates, who had been raiſed to the throne of Parthia in oppoſition to Phrahates, and likewiſe ambaſſadors from Phrahates, who were all come on the ſame errand; to wit, to ſolicit the aſſiſtance of the Romans againſt each other. Octavianus gave a friendly anſwer both to Tiridates and the ambaſſadors of Phrahates, without intending to help either; but rather with a deſign to animate the one againſt the other, and by that means to weaken both, ſo far as to render the Parthian name no longer formidable to Rome. After this, having appointed M. Vinicius

Rome.

Corvinus governor of Syria, he marched into the province of Asia, properly so called, and there took up his winter quarters. He spent the whole winter in settling the affairs of the several provinces of Asia Minor and the adjacent islands; and early in the spring passed into Greece, whence he set out for Rome, which he entered in the month Sextilis, afterwards called *August*, in three triumphs, which were celebrated for three days together.

253 Octavianus has thoughts of returning his power.

And now Octavianus was at the height of his wishes, sole sovereign, sole master, of the whole Roman empire. But, on the other hand, the many dangers which attend an usurped power, appearing to him in a stronger light than ever, filled his mind with a thousand perplexing thoughts. The natural aversion of the Romans to a kingly government, their love of liberty, and the ides of March, when his father Julius was murdered in full senate by those very men whom he thought the most devoted to his person, made him fear there might arise another Brutus, who, to restore liberty to his country, might assassinate him on his very throne. This he knew had happened to Julius Cæsar; whereas Sylla, after having laid down the authority he had usurped, died peaceably in his bed in the midst of his enemies. The passion of fear outweighed in his soul the charms of a diadem, and inclined him to follow the example of Sylla. He was indeed very unwilling to part with his authority; but fear began to get the better of his ambition. However, before he came to any resolution, he thought it advisable to consult his two most intimate and trusty friends, Agrippa and Mæcenas; the former no less famous for his probity than his valour; and the latter a man of great penetration, and generally esteemed the most refined politician of his age. Agrippa enlarged on the many and almost inevitable dangers which attend monarchy, insupportable to a free people, and to men educated in a commonwealth. He did not forget the examples of Sylla and Cæsar; and closed his speech with exhorting Octavianus to convince the world, by restoring liberty to his country, that the only motive for his taking up arms was to revenge his father's death.

254 But is dissuaded from it by Mæcenas.

Mæcenas, on the other hand, remonstrated to him, that he had done too much to go back; that, after so much bloodshed, there could be no safety for him but on the throne; that, if he divested himself of the sovereign power, he would be immediately prosecuted by the children and friends of the many illustrious persons whom the misfortunes of the times had forced him to sacrifice to his safety; that it was absolutely necessary for the welfare and tranquillity of the republic, that the sovereign power should be lodged in one person, not divided among many, &c. Octavianus thanked them both for their friendly advice, but showed himself inclined to follow the opinion of Mæcenas; whereupon that able minister gave him many wise instructions and rules of government, which are related at length by Dio Cassius, and will ever be looked upon as a masterpiece in politics. Among other things he told him, That he could not fail of being successful in all his undertakings, happy in his lifetime, and famous in history after his death, if he never deviated from this rule; to wit, To govern others as he would wish to be governed himself, had he been born to obey and not to command. He added, That if, in taking upon him the sovereign power, he dreaded the name of king, a name so odious in a commonwealth, he might content himself with the title of *Cæsar* or *Imperator*, and under that name, which was well known to the Romans, enjoy all the authority of a king.

This advice Octavianus followed, and from that time laid aside all thoughts of abdicating the sovereign power; but, to deceive the people into a belief that they still enjoyed their ancient government, he continued the old magistrates, with the same name, pomp, and ornaments, but with just as much power as he thought fit to leave them. They were to have no military power, but only their old jurisdiction of deciding finally all causes, except such as were capital; and though some of these last were left to the governor of Rome, yet the chief he reserved for himself. He paid great court to the people: the very name that covered his usurpation was a compliment to them; for he affected to call it the power of the tribuneship, though he acted as absolutely by it as if he had called it the dictatorial power. He likewise won the hearts of the populace by cheapness of provisions and plentiful markets; he frequently entertained them with shows and sports; and by these means kept them in good-humour, and made them forget usurpation, slavery, and every public evil; people in ease and plenty being under no temptation of inquiring into the title of their prince, or resenting acts of power which they do not immediately feel.

As for the senate, he filled it with his own creatures, raising the number of the conscript fathers to 1000. He supplied several poor senators with money out of the treasury to discharge the public offices, and on all occasions affected an high regard for that venerable body; but at the same time divested them of all power, and reduced them to mere cyphers. To prevent them from raising new disturbances in the distant provinces, he issued an edict, forbidding any senator to travel out of Italy without leave, except such as had lands in Sicily, or Narbonne Gaul, which at that time comprehended Languedoc, Provence, and Dauphiny. To these provinces, which were near Italy, and in a perfect state of tranquillity, they had full liberty to retire when they pleased, and live there upon their estates. Before he ended his sixth consulship, he took a census of the people, which was 41 years after the last; and in this the number of the men fit to bear arms amounted to 463,000, the greatest that had ever been found before. He likewise celebrated the games which had been decreed by the senate for his victory at Actium; and it was ordered, that they should be celebrated every fifth year, four colleges of priests being appointed to take care of them; to wit, the pontifices, the augurs, the septemvirs, and quindecimvirs. The more to gain the affections of the people, he annulled, by one edict, the many severe and unjust laws which had been enacted during the triumvirate. He raised many public buildings, repaired the old ones, and added many stately ornaments to the city, which at this time was, if we may give credit to some ancient writers, about 50 miles in compass, and contained near four millions of souls, reckoning men, women, children, and slaves. He attended business, reformed abuses, showed great regard for the Roman name, procured public abundance, pleasure, and jollity, often

often appearing in perſon at the public diverſions, and in all things ſtudying to render himſelf dear to the populace.

And now Octavianus, entering upon his ſeventh conſulſhip with M. Agrippa, the third time conſul, and finding all things ripe for his deſign, the people being highly pleaſed with his mild government, and the ſenate filled with his creatures, whoſe fortunes depended upon his holding the power he had uſurped, went by the advice of Agrippa and Mæcenas to the ſenate-houſe; and there, in a ſtudied ſpeech, offered to reſign his authority, and put all again into the hands of the people upon the old foundation of the commonwealth; being well appriſed, that the greater part of the conſcript fathers, whoſe intereſts were interwoven with his, would unanimouſly preſs him to the contrary: Which happened accordingly; for they not only interrupted him while he was ſpeaking, but, after he had done, unanimouſly beſought him to take upon himſelf alone the whole government of the Roman empire. He, with a ſeeming reluctance, yielded at laſt to their requeſt, as if he had been compelled to accept of the ſovereignty. By this artifice he compaſſed his deſign, which was, to get the power and authority, which he had uſurped, confirmed to him by the ſenate and people for the ſpace of 10 years: for he would not accept of it for a longer term, pretending he ſhould in that time be able to ſettle all things in ſuch peace and order that there would be no further need of his authority; but that he might then eaſe himſelf of the burden, and put the government again into the hands of the ſenate and people. This method he took to render the yoke leſs heavy; but with a deſign to renew his leaſe, if we may be allowed the expreſſion, as ſoon as the ten years were expired; which he did accordingly from ten years to ten years as long as he lived, all the while governing the whole Roman empire with an abſolute and uncontrouled power. With this new authority the ſenate reſolved to diſtinguiſh him with a new name. Some of the conſcript fathers propoſed the name of *Romulus*, thereby to import that he was another founder of Rome; others offered other titles; but the venerable name of *Auguſtus*, propoſed by Manutius Plancus, ſeemed preferable to all the reſt, as it expreſſed more dignity and reverence than authority, the moſt ſacred things, ſuch as temples, and places conſecrated by augurs, being termed by the Romans *Auguſta*. Octavianus himſelf was inclined to aſſume the name of *Romulus*; but, fearing he ſhould be ſuſpected of affecting the kingdom, he declined it, and took that of *Auguſtus*, by which we ſhall henceforth diſtinguiſh him.

Though the whole power of the ſenate and people was now veſted in Auguſtus, yet, that he might ſeem to ſhare it with the conſcript fathers, he refuſed to govern all the provinces; aſſigning to the ſenate ſuch as were quiet and peaceable; and keeping to himſelf thoſe which, bordering upon barbarous nations, were moſt expoſed to troubles and wars, ſaying, He deſired the fathers might enjoy their power with eaſe and ſafety, while he underwent all the dangers and labours: but, by this politic conduct, he ſecured all the military power to himſelf; the troops lying in the provinces he had choſen; and the others, which were governed by the ſenate, being quite deſtitute of forces. The latter were called *ſenatorial*, and the former *imperial*, provinces. Over the provinces of both ſorts were ſet men of diſtinction, to wit, ſuch as had been conſuls or prætors, with the titles of *proconſul* and *proprætor*; but the government of Egypt was committed to a private knight, Auguſtus fearing leſt a perſon of rank, depending upon the wealth and ſituation of that country, might raiſe new diſturbances in the empire. All theſe governors held their employment only for a year, and were upon the arrival of their ſucceſſors to depart their provinces immediately, and not fail to be at Rome within three months at the fartheſt. This diviſion of the provinces was made, according to Ovid, on the ides of January; whereas he was veſted by the ſenate and people with the ſovereign power on the ſeventh of the ides of the ſame month, as is manifeſt from the Narbonne marbles; and from that time many writers date the years of his empire. Thus ended the greateſt commonwealth, and at the ſame time began the greateſt monarchy, that had ever been known; a monarchy which infinitely excelled in power, riches, extent, and continuance, all the empires which had preceded it.

257 Extent, &c. of the Roman empire.

It comprehended the greateſt and by far the beſt part of Europe, Aſia, and Africa, being near 4000 miles in length, and about half as much in breadth. As to the yearly revenues of the empire, they have by a moderate computation been reckoned to amount to forty millions of our money. But the Romans themſelves now ran headlong into all manner of luxury and effeminacy. The people were become a mere mob; thoſe who were wont to direct mighty wars, to raiſe and depoſe great kings, to beſtow or take away potent empires, were ſo ſunk and debauched, that, if they had but bread and ſhows, their ambition went no higher. The nobility were indeed more polite than in former ages; but at the ſame time idle, venal, vicious, inſenſible of private virtue, utter ſtrangers to public glory or diſgrace, void of zeal for the welfare of their country, and ſolely intent on gaining the favour of the emperor, as knowing that certain wealth and preferment were the rewards of ready ſubmiſſion, acquieſcence, and flattery. No wonder, therefore, that they loſt their liberty, without being ever again able to retrieve it.

258 Military eſtabliſhments of Auguſtus.

Auguſtus, now abſolute maſter of the Roman empire, took all methods to ingratiate himſelf with his ſoldiers, by whoſe means he had attained ſuch a height of power. With this view, he diſperſed them through different parts of Italy in 32 colonies, that he might the more eaſily reaſſemble them on proper occaſions. He kept 25 legions conſtantly on foot, 17 of which were in Europe; viz. eight on the Rhine, four on the Danube, three in Spain, and two in Dalmatia. The other eight were ſent into Aſia and Africa; four of them being quartered in the neighbourhood of the Euphrates, two in Egypt, and two in Africa Propria, that is, the ancient dominions of Carthage. All theſe forces, amounting to 170,650 men, were conſtantly kept on foot by the Roman emperors for ſeveral ages. In the neighbourhood of Rome were always quartered 12 cohorts, that is, about 12,000 men; nine of which were called *prætorian cohorts*; the other three, *city cohorts*. Theſe were eſtabliſhed as a guard to the emperor, and to maintain peace and tranquillity in the city, but had often a great ſhare in the diſturbances which took place throughout the empire. Beſide theſe, Auguſtus conſtantly kept at ſea two powerful navies; the one riding at

Rome. at anchor near Ravenna in the Adriatic sea, to command Dalmatia, Greece, Cyprus, and the rest of the eastern provinces; the other at Misenum in the Mediterranean, to keep in awe the western parts of the empire. They were likewise to keep the seas clear of pirates, to convoy the vessels which brought to Rome the annual tributes from the provinces beyond sea, and to transport corn and other provisions necessary for the relief and subsistence of the city. As to the civil government, Augustus enacted several new laws, and reformed some of the old ones: however, he affected to do nothing without the advice of the senate; who were so well pleased with the complaisance showed them on all occasions, that to the rest of his titles they added that of *Pater Patriæ*, or "Father of his Country."

And now Augustus having settled all things with regard to the civil and military establishments of the empire, turned his arms against the Spanish nations called the *Cantabrians* and *Asturians*, who had never been fully subdued. The war, however, terminated as usual, in favour of the Romans; and these brave nations were forced to receive the yoke, though not without the most violent resistance on their part, and the utmost difficulty on that of the Romans (See ASTURIA). By this and his other conquests the name of Augustus became so celebrated, that his friendship was courted by the most distant monarchs. Phrahates king of Parthia consented to a treaty with him upon his own terms, and gave him four of his own sons with their wives and children as hostages for the performance of the articles; and as a further instance of his respect, he delivered up the Roman eagles and other ensigns which had been taken from Crassus at the battle of Carrhæ. He received also an embassy from the king of India, with a letter written in the Greek tongue, in which the Indian monarch informed him, that "though he reigned over 600 kings, he had so great a value for the friendship of Augustus, that he had sent this embassy on so long a journey on purpose to desire it of him; that he was ready to meet him at whatsoever place he pleased to appoint; and that, upon the first notice, he was ready to assist him in whatever was right." This letter he subscribed by the name of *Porus king of India*. Of the ambassadors who set out from India, three only reached the presence of Augustus, who was at that time in the island of Samos, the others dying by the way. Of the three survivors one was names *Zarmar*, a gymnosophist, who followed the emperor to Athens, and there burnt himself in his presence; it being customary for the gymnosophists to put an end to their lives in this manner, when they thought they had lived long enough, or apprehended some misfortune. Soon after this the Roman dominions were extended southward over the Garamantes, a people whose country reached as far as the river Niger. All this time the emperor continued to make new regulations for the good of the state; and among other things caused the Sibylline oracles to be reviewed. Many of these he rejected; but such as were reckoned authentic, he caused to be copied by the pontifices themselves, and lodged them in golden cabinets, which he placed in the temple of Apollo, built by him in his palace.

259 His friendship courted by the kings of Parthia and India.

The Roman empire had now extended itself so far, that it seemed to have arrived at the limits prescribed to it by nature; and as soon as this was the case, it began to be attacked by those nations which in process of time were to overthrow it. The Germans, by which name the Romans confounded a great number of nations dwelling in the northern parts of Europe, began to make incursions into Gaul. Their first attempt happened in the year 17 B. C. when they at first gained an inconsiderable advantage, but were soon driven back with great loss. Soon after this the Rhæti, who seem to have inhabited the country bordering on the lake of Constance, invaded Italy, where they committed dreadful devastations, putting all the males to the sword without distinction of rank or age; nay, we are told, that when women with child happened to fall into their hands, they consulted their augurs whether the child was male or female; and if they pronounced it a male, the mother was immediately massacred. Against these barbarians Augustus sent Drusus the second son of the empress Livia; who, though very young, found means to gain a complete victory with very little loss on his part. Those who escaped took the road to Gaul, being joined by the Vindelici, another nation in the neighbourhood; but Tiberius, the elder brother of Drusus, marched against them, and overthrew them so completely, that the Rhæti, Vindelici, and Norici, three of the most barbarous nations in those parts, were fain to submit to the pleasure of the emperor. To keep their country in awe, Tiberius planted two colonies in Vindelicia, opening a road from thence into Noricum and Rhætia. One of the cities which he built for the defence of his colonies was called *Drysomagus*; the other, *Augusta Vindelicorum*; both of which are now known by the names of *Nimmingben* and *Augsburg*.

260 The emperor invaded the northern barbarians.

Augustus, who had long since obtained all the temporal honours which could well be conferred upon him, now began to assume those of the spiritual kind also; being in the year 13 B. C. created Pontifex Maximus: an office which he continued to hold till his death; as did also his successors till the time of Theodosius. By virtue of this office he corrected a very gross mistake in the Roman kalendar; for the pontifices having, for the space of 36 years, that is, ever since the reformation by Julius Cæsar, made every third year a leap year, instead of every fourth, twelve days had been inserted instead of nine, so that the Roman year consisted of three days more than it ought to have done. These three superfluous days having been thrown out, the form of the year has ever since been regularly observed, and is still known by the name of the *old style* in use among us. On this occasion he gave his own name to the month of August, as Julius Cæsar had formerly done to the month of July.

261 Augustus created pontifex maximus.

In the year 11 B. C. Agrippa died, and was succeeded in his high employment of governor of Rome by Tiberius; but, before investing him with this ample power, the emperor caused him to divorce his wife Agrippina (who had already brought him a son, and was then big with child), in order to marry Julia the widow of Agrippa and daughter of the emperor. Julia was a princess of an infamous character, as was known to almost every body excepting Augustus himself; however, Tiberius made no hesitation, through fear of disobliging the emperor.

261 Tiberius succeeds Agrippa.

The emperor now sent his two sons Tiberius and Drusus against the northern nations. Tiberius reduced

ceed the Pannonians, who had attempted to shake off the yoke after the death of Agrippa. Drusus performed great exploits in Germany; but while he was considering whether he should penetrate further into these northern countries, he was seized with a violent fever, which carried him off in a few days. He was succeeded in his command by Tiberius, who is reported to have done great things, but certainly made no permanent conquests in Germany. However, he was honoured with a triumph, and had the tribunitial power for five years conferred upon him; which was no sooner done, than, to the great surprise of Augustus and the whole city, he desired leave to quit Rome and retire to Rhodes. Various reasons have been assigned for this extraordinary resolution: some are of opinion that it was in order to avoid being an eye-witness of the debaucheries of his wife Julia, who set no bounds to her lewdness; though others imagine that he was offended at the honours which Augustus had conferred on his grandchildren, especially at his styling them *princes of the Roman youth;* which left him no hopes of enjoying the sovereign power. However, Augustus positively refused to comply with his request, and his mother Livia used her utmost endeavours to dissuade him from his resolution: but Tiberius continued obstinate; and finding all other means ineffectual, at last shut himself up in his house, where he abstained four whole days from nourishment. Augustus, perceiving that he could not get the better of his obstinate and inflexible temper, at last complied with his request. Tiberius soon grew weary of his retirement, and, giving out that he had left Rome only to avoid giving umbrage to the emperor's two grandchildren, desired leave to return; but Augustus was so much displeased with his having obstinately insisted on leaving Rome, that he obliged him to remain at Rhodes for seven years longer. His mother, with much ado got him declared the emperor's lieutenant in those parts; but Tiberius, dreading the resentment of his father-in-law, continued to act as a private person during the whole time of his stay there.

A profound peace now reigned throughout the whole empire; and in consequence of this the temple of Janus was shut, which had never before happened since the time of Numa Pompilius. During this pacific interval, the Saviour of mankind was born in Judæa, as is recorded in the sacred history, 748 years after the foundation of Rome by Romulus. Three years after, Tiberius returned to the city, by permission of Augustus, who yet would not allow him to bear any public office; but in a short time, Lucius Cæsar, one of the emperor's grandchildren, died, not without suspicions of his being poisoned by Livia. Tiberius showed such great concern for his death, that the affection of Augustus for him returned; and it is said that he would at that time have adopted Tiberius, had it not been for giving umbrage to his other grandson Caius Cæsar. This obstacle, however, was soon after removed; Caius being taken off also, not without great suspicions of Livia, as well as in the former case. Augustus was exceedingly concerned at his death, and immediately adopted Tiberius as his son; but adopted also Agrippa Posthumius, the third son of the famous Agrippa; and obliged Tiberius to adopt Germanicus the son of his brother Drusus, though he had a son of his own named *Drusus;* which was a great mortification to him. As to Agrippa, however, who might have been an occasion of jealousy, Tiberius was soon freed from him, by his disgrace and banishment, which very soon took place, but on what account is not known.

The northern nations now began to turn formidable: and though it is pretended that Tiberius was always successful against them, yet about this time they gave the Romans a most terrible overthrow; three legions and six cohorts, under Quintilius Varus, being almost entirely cut in pieces. Augustus set no bounds to his grief on this fatal occasion. For some months he let his hair and beard grow, frequently tearing his garments, knocking his head against the wall, and crying out like a distracted person, "Restore the legions, Varus!" Tiberius, however, was soon after sent into Germany; and for his exploits there he was honoured with a triumph. Augustus now took him for his colleague in the sovereignty; after which he sent Germanicus against the northern barbarians, and Tiberius into Illyricum. This was the last of his public acts; for having accompanied Tiberius for part of his journey, he died at Nola in Campania, in the 76th year of his age, and 56th of his reign. Livia was suspected of having hastened his death by giving him poisoned figs. Her reason for this was, that she feared a reconciliation between him and his grandson Agrippa whom he had banished, as we have already related. Some months before, the emperor had paid a visit to Agrippa, unknown to Livia, Tiberius, or any other person, excepting one Fabius Maximus. This man, on his return home, discovered the secret to his wife, and she to the empress. Augustus then perceiving that Fabius had betrayed him, was so provoked, that he banished him from his presence for ever; upon which the unfortunate Fabius, unable to survive his disgrace, laid violent hands on himself.

Tiberius, who succeeded to the empire, resolved to secure himself on the throne by the murder of Agrippa; whom accordingly he caused to be put to death by a military tribune. Though this might have been a sufficient evidence of what the Romans had to expect, the death of Augustus was no sooner known, than the consuls, senators, and knights, to use the expression of Tacitus, ran headlong into slavery. The two consuls first took an oath of fidelity to the emperor, and then administered it to the senate, the people, and the soldiery. Tiberius behaved in a dark mysterious manner, taking care to rule with an absolute sway, but at the same time seeming to hesitate whether he should accept the sovereign power or not; insomuch that one of the senators took the liberty to tell him, that other men were slow in performing what they had promised, but he was slow in promising what he had already performed. At last, however, his modesty was overcome, and he declared his acceptance of the sovereignty in the following words: "I accept the empire, and will hold it, till such time as you, conscript fathers, in your great prudence, shall think proper to give repose to my old age."

Tiberius had scarce taken possession of the throne, when news were brought him that the armies in Pannonia and Germany had mutinied. In Pannonia, three legions having been allowed some days of relaxation from their usual duties, either to mourn for the death of Augustus, or to rejoice for the accession of Tiberius, grew turbulent and seditious. The Pannonian mutineers

Rome.

267 Death of Augustus.

268 Dissimulation of Tiberius.

269 Revolt of the Pannonian and German legions.

Rome.

neers were headed by one Percennius, a common soldier; who, before he served in the army, had made it his whole business to form parties in the theatres and playhouses to hiss or applaud such actors as he liked or disliked. Inflamed by the speeches of this man, they openly revolted; and though Tiberius himself wrote to them, and sent his son Drusus to endeavour to quell the tumult, they massacred some of their officers, and insulted others, till at last, being frightened by an eclipse of the moon, they began to show some signs of repentance. Of this favourable disposition Drusus took advantage; and even got the ringleaders of the revolt condemned and executed. Immediately after this they were again terrified by such violent storms and dreadful rains, that they quietly submitted, and every thing in that quarter was restored to tranquillity.

The revolt of the German legions threatened much more danger, as they were more numerous than those of Pannonia. They proceeded nearly in the same way as the Pannonian legions, falling upon their officers, especially the centurions, and beating them till they almost expired, drove them out of the camp, and some of them were even thrown into the Rhine. Germanicus, who was at that time in Gaul, hastened to the camp on the first news of the disturbance; but being unable to prevail on them to return to their duty, he was obliged to feign letters from Tiberius, granting all their demands. These were, That all those who had served 20 years should be discharged; that such as had served 16 should be deemed veterans; and that some legacies which had been left them by Augustus should not only be paid immediately, but doubled. This last article he was obliged to discharge without delay out of the money which he and his friends had brought to defray the expences of their journey; and on receiving it, the troops quietly retired to their winter-quarters. But, in the mean time, some deputies sent either by Tiberius or the senate, probably to quell the sedition, occasioned fresh disturbances; for the legionaries, taking it into their heads that these deputies were come to revoke the concessions which Germanicus had made, were with difficulty prevented from tearing them in pieces; and, notwithstanding the utmost endeavours of Germanicus, behaved in such an outrageous manner, that the general thought proper to send off his wife Agrippina, with her infant son Claudius, she herself at the same being big with child. As she was attended by many women of distinction, wives of the chief officers in the camp, their tears and lamentations in parting with their husbands occasioned a great uproar, and drew together the soldiers from all quarters. A new scene ensued, which made an impression even upon the most obstinate. They could not behold, without shame and compassion, so many women of rank travelling thus forlorn, without a centurion to attend them, or a soldier to guard them; and their general's wife among the rest, carrying her infant child in her arms, and preparing to fly for shelter against the treachery of the Roman legions. This made such a deep impression on the minds of many of them, that some ran to stop her, while the rest recurred to Germanicus, earnestly intreating him to recall his wife, and to prevent her from being obliged to seek a sanctuary among foreigners. The general improved this favourable disposition, and in a short time they of their own accord seized and massacred the ringleaders of the revolt. Still, however, two of the legions continued in their disobedience. Against them therefore Germanicus determined to lead those who had returned to their duty. With this view he prepared vessels; but before he embarked his troops, he wrote a letter to Cæcina who commanded them, acquainting him that he approached with a powerful army, resolved to put them all to the sword without distinction, if they did not prevent him by taking vengeance on the guilty themselves. This letter Cæcina communicated only to the chief officers and such of the soldiers as had all along disapproved of the revolt, exhorting them at the same time to enter into an association against the seditious, and put to the sword such as had involved them in the present ignominy and guilt. This proposal was approved of, and a cruel massacre immediately took place; insomuch that when Germanicus came to the camp, he found the greatest part of the legions destroyed. This greatly affected the humane Germanicus, who caused the bodies of the slain to be burnt, and celebrated their obsequies with the usual solemnities; however, the sedition was thus effectually quelled, after which he led his army into Germany. There he performed many great exploits †; but still all that he could perform was far from freeing the empire from so dangerous and troublesome an enemy. In the year 19, he died, of poison, as was supposed, given by Piso, his partner in the government of Syria, to which Germanicus had been promoted after his return from the north.

270 The revolt quelled by a dreadful massacre.

† See Germany.

In the mean time, Tiberius, though he affected to court the favour of the people by various methods, yet showed himself in general such a cruel and bloodthirsty tyrant, that he became the object of universal abhorrence. Though he had hated Germanicus in his heart, he punished Piso with death; but in about a year after the death of Germanicus, having now no object of jealousy to keep him in awe, he began to pull off the mask, and appear more in his natural character than before. He took upon himself the interpretation of all political measures, and began daily to diminish the authority of the senate; which design was much facilitated, by their own aptitude to slavery; so that he despised their meanness, while he enjoyed its effects. A law at that time subsisted, which made it treason to form any injurious attempt against the majesty of the people. Tiberius assumed to himself the interpretation and enforcement of this law; and extended it not only to the cases which really affected the safety of the state, but to every conjuncture that could possibly be favourable to his hatred or suspicions. All freedom was now therefore banished from convivial meetings, and diffidence reigned amongst the dearest relations. The law of offended majesty being revived, many persons of distinction fell a sacrifice to it.

271 Tiberius a cruel tyrant.

In the beginning of these cruelties, Tiberius took into his confidence Sejanus, a Roman knight, but by birth a Volscian, who found out the method of gaining his confidence, by the most refined degree of dissimulation, being an over-match for his master in his own arts. He was made by the emperor captain of the Prætorian guards, one of the most confidential trusts in the state, and extolled in the senate as a worthy associate in his labours. The servile senators, with

272 Rise of Sejanus a wicked minister.

ome.

ready adulation, set up the statues of the favourite beside those of Tiberius, and seemed eager to pay him similar honours. It is not well known whether he was the adviser of all the cruelties that ensued soon after; but certain it is, that, from the beginning of his ministry, Tiberius seemed to become more fatally suspicious.

It was from such humble beginnings that this minister even ventured to aspire at the throne, and was resolved to make the emperor's foolish confidence one of the first steps to his ruin. However, he considered that cutting off Tiberius alone would rather retard than promote his designs while his son Drusus and the children of Germanicus were yet remaining. He therefore began by corrupting Livia, the wife of Drusus; whom, after having debauched her, he prevailed upon to poison her husband. This was effected by means of a slow poison (as we are told), which gave his death the appearance of a casual distemper. Tiberius, in the mean time, either naturally phlegmatic, or at least not much regarding his son, bore his death with great tranquillity. He was even heard to jest upon the occasion; for when the ambassadors from Troy came somewhat late with their compliments of condolence, he answered their pretended distresses, by condoling with them also upon the loss of Hector.

73 infa s con-

Sejanus having succeeded in this, was resolved to make his next attempt upon the children of Germanicus, who were undoubted successors to the empire. However, he was frustrated in his designs, both with regard to the fidelity of their governors, and the chastity of Agrippina their mother. Whereupon he resolved upon changing his aims, and removing Tiberius out of the city; by which means he expected more frequent opportunities of putting his designs into execution. He therefore used all his address to persuade Tiberius to retire to some agreeable retreat, remote from Rome. By this he expected many advantages, since there could be no access to the emperor but by him. Thus all letters being conveyed to the prince by soldiers at his own devotion, they would pass through his hands; by which means he must in time become the sole governor of the empire, and at last be in a capacity of removing all obstacles to his ambition. He now therefore began to insinuate to Tiberius the great and numerous inconveniences of the city, the fatigues of attending the senate, and the seditious temper of the inferior citizens of Rome. Tiberius, either prevailed upon by his persuasions, or pursuing the natural turn of his temper, which led to indolence and debauchery, in the twelfth year of his reign left Rome, and went into Campania, under pretence of dedicating temples to Jupiter and Augustus. After this, though he removed to several places, he never returned to Rome; but spent the greatest part of his time in the island of Caprea, a place which was rendered as infamous by his pleasures as detestable by his cruelties, which were shocking to human nature. Buried in this retreat, he gave himself up to his pleasures, quite regardless of the miseries of his subjects. Thus an insurrection of the Jews, upon placing his statue in Jerusalem, under the government of Pontius Pilate, gave him no sort of uneasiness. The falling of an amphitheatre at Fidenæ, in which 50,000 persons were either killed or wounded, no way affected his repose. He was only employed in studying how to vary his odious pleasures, and forcing his feeble frame, shattered by age and former debaucheries, into the enjoyment of them. Nothing can present a more horrid picture than the retreat of this impure old man, attended by all the ministers of his perverted appetites. He was at this time 67 years old; his person was most displeasing; and some say the disagreeableness of it in a great measure, drove him into retirement. He was quite bald before; his face was all broke out into ulcers, and covered over with plasters; his body was bowed forward, while its extreme height and leanness increased its deformity. With such a person, and a mind still more hideous, being gloomy, suspicious, and cruel, he sat down with a view rather of forcing his appetites than satisfying them. He spent whole nights in debaucheries at the table; and he appointed Pomponius Flaccus and Lucius Piso to the first posts of the empire, for no other merit than that of having sat up with him two days and two nights without interruption. These he called his friends of all hours. He made one Novelius Torgnatus a prætor for being able to drink off five bottles of wine at a draught. His luxuries of another kind were still more detestable, and seemed to increase with his drunkenness and gluttony. He made the most eminent women of Rome subservient to his lusts; and all his inventions only seemed calculated how to make his vices more extravagant and abominable. The numberless obscene medals dug up in that island at this day bear witness at once to his shame, and the veracity of the historians who have described his debaucheries. In short, in this retreat, which was surrounded with rocks on every side, he quite gave up the business of the empire; or, if he was ever active, it was only to do mischief. But, from the time of his retreat, he became more cruel, and Sejanus always endeavoured to increase his distrusts. Secret spies and informers were placed in all parts of the city, who converted the most harmless actions into subjects of offence. If any person of merit testified any concern for the glory of the empire, it was immediately construed into a design to obtain it. If another spoke with regret of former liberty, he was supposed to aim at re-establishing the commonwealth. Every action became liable to forced interpretations; joy expressed an hope of the prince's death; melancholy, an envying of his prosperity. Sejanus found his aim every day succeeding; the wretched emperor's terrors were an instrument that he wrought upon at his pleasure, and by which he levelled every obstacle to his designs. But the chief objects of his jealousy were the children of Germanicus, whom he resolved to put out of the way. He therefore continued to render them obnoxious to the emperor, to alarm him with false reports of their ambition, and to terrify them with alarms of his intended cruelty. By these means, he so contrived to widen the breach, that he actually produced on both sides those dispositions which he pretended to obviate; till at length, the two princes Nero and Drusus were declared enemies to the state, and afterwards starved to death in prison; while Agrippina their mother was sent into banishment.

74 Tiberius retires from Rome.

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275 His abominable conduct in his retreat.

276 The children of Germanicus put to death.

In this manner Sejanus proceeded, removing all who stood between him and the empire, and every day increasing in confidence with Tiberius, and power with the senate. The number of his statues exceeded even those

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those of the emperor; people swore by his fortune, in the same manner as they would have done had he been actually upon the throne, and he was more dreaded than even the tyrant who actually enjoyed the empire. But the rapidity of his rise seemed only preparatory to the greatness of his downfall. All we know of his first disgrace with the emperor is, that Satrius Secundus was the man who had the boldness to accuse him. Antonia, the mother of Germanicus, seconded the accusation. What were the particulars of his crimes, we cannot learn; but certain it is, that he attempted to usurp the empire, by aiming at the life of Tiberius. He was very near dispatching him, when his practices were discovered, and his own life was substituted for that against which he aimed. Tiberius, sensible of the traitor's power, proceeded with his usual dissimulation in having him apprehended. He granted him new honours at the very time he resolved his death, and took him as his colleague in the consulship. The emperor's letter to the senate began only with slight complaints against his friend, but ended with an order for putting him in prison. He intreated the senators to protect a poor old man, as he was, abandoned by all; and, in the mean time, prepared ships for his flight, and ordered soldiers for his security. The senate, who had long been jealous of the favourite's power, and dreaded his cruelty, immediately took this opportunity of going beyond their orders. Instead of sentencing him to imprisonment, they directed his execution. A strange revolution now appeared in the city; of those numbers that but a moment before were pressing into the presence of Sejanus, with offers of service and adulation, not one was found that would seem to be of his acquaintance: he was deserted by all; and those who had formerly received the greatest benefits from him, seemed now converted into his most inveterate enemies. As he was conducting to execution, the people loaded him with insult and execration. He attempted to hide his face with his hands; but even this was denied him, and his hands were secured. Nor did the rage of his enemies subside with his death; his body was ignominiously dragged about the streets, and his whole family executed with him.

277 Sejanus disgraced and put to death.

His death only lighted up the emperor's rage for further executions. The prisons were crowded with pretended accomplices in the conspiracy of Sejanus. Tiberius began to grow weary of particular executions; he therefore gave orders that all the accused should be put to death together without further examination. Of 20 senators, whom he chose for his council, he put 16 to death. "Let them hate me (cried he) so long as they obey me." He then averred, that Priam was an happy man, who outlived all his posterity. In this manner there was not a day without some barbarous execution, in which the sufferers were obliged to undergo the most shameful indignities and exquisite torments. When one Camillus had killed himself to avoid the torture: "Ah (cried Tiberius), how that man has been able to escape me!" When a prisoner earnestly intreated that he would not defer his death: "No (cried the tyrant), I am not sufficiently your friend, to shorten your torment." He often satisfied his eyes with the tortures of the wretches that were put to death before him; and in the days of Suetonius the rock was to be seen, from which he ordered such as had displeased him to be thrown headlong. As he was one day examining some persons upon the rack, he was told that an old friend of his was come from Rhodes to see him. Tiberius supposing him brought for the purpose of information, immediately ordered him to the torture; and when he was convinced of his mistake, he ordered him to be put to death, to prevent farther discovery.

278 Monstrous cruelty of Tiberius.

In this manner did the tyrant continue to torment others, although he was himself still more tortured by his own suspicions; so that in one of his letters to the senate, he confessed that the gods and goddesses had so afflicted and confounded him, that he knew not what or how to write. In the mean time, the frontier provinces were invaded with impunity by the barbarians. Mæsia was seized on by the Dacians and Sarmatians; Gaul was wasted by the Germans, and Armenia conquered by the king of Parthia. Tiberius, however, was so much a slave to his brutal appetites, that he left his provinces wholly to the care of his lieutenants, and they were intent rather on the accumulation of private fortune than the safety of the state. Such a total disorder in the empire produced such a degree of anxiety in him who governed it, that he was heard to wish, that heaven and earth might perish when he died. At length, however, in the 22d year of his reign, he began to feel the approaches of his dissolution, and all his appetites totally to forsake him. He now, therefore, found it was time to think of a successor, and hesitated for a long while, whether he should choose Caligula, whose vices were too apparent to escape his observation. He had been often heard to say, that this youth had all the faults of Sylla, without his virtues; that he was a serpent that would sting the empire, and a Phaeton that would set the world in a flame. However, notwithstanding all his well-grounded apprehensions, he named him for his successor; willing, perhaps, by the enormity of Caligula's conduct to cover the memory of his own.

279 Chooses Caligula his successor.

But though he thought fit to choose a successor, he concealed his approaching decline with the utmost care, as if he was willing at once to hide it from the world and himself. He long had a contempt for physic, and refused the advice of such as attended him: he even seemed to take a pleasure in being present at the sports of the soldiers, and ventured himself to throw a javelin at a boar that was let loose before him. The effort which he made upon this occasion caused a pain in his side, which hastened the approaches of death: still, however, he seemed willing to avoid his end; and strove, by change of place, to put off the inquietude of his own reflections. He left his favourite island, and went upon the continent, where he at last fixed at the promontory of Misenum. It was here that Charicles, his physician, pretending to kiss his hand, felt the failure of his pulse; and apprised Macro, the emperor's present favourite, that he had not above two days to live. Tiberius, on the contrary, who had perceived the art of Charicles, did all in his power to impress his attendants with an opinion of his health: he continued at table till the evening; he saluted all his guests as they left the room, and read the acts of the senate, in which they had absolved some persons he had written against, with great indignation. He resolved

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resolved to take signal vengeance of their disobedience, and meditated new schemes of cruelty, when he fell into such faintings, as all believed were fatal. It was in this situation, that, by Macro's advice, Caligula prepared to secure the succession. He received the congratulations of the whole court, caused himself to be acknowledged by the Prætorian soldiers, and went forth from the emperor's apartment amidst the applauses of the multitude; when all of a sudden he was informed that the emperor was recovered, that he had begun to speak, and desired to eat. This unexpected account filled the whole court with terror and alarm: every one who had before been earnest in testifying their joy, now re-assumed their pretended sorrow, and left the new emperor, through a feigned solicitude for the fate of the old. Caligula himself seemed thunderstruck; he preserved a gloomy silence, expecting nothing but death, instead of the empire at which he had aspired. Macro, however, who was hardened in crimes, ordered that the dying emperor should be dispatched, by smothering him with pillows, or, as others will have it, by poison. In this manner Tiberius died, in the 78th year of his age, after reigning 22.

80 Corruptions of the Romans at this time.

The Romans were, at this time, arrived at their highest pitch of effeminacy and vice. The wealth of almost every nation of the empire, having, for some time, circulated through the city, brought with it the luxuries peculiar to each country; so that Rome presented a detestable picture of various pollution. In this reign lived Apicius, so well known for having reduced gluttony into a system; some of the most notorious in this way, thought it no shame to give near 100 pounds for a single fish, and exhaust a fortune of 50,000 pounds in one entertainment. Debaucheries of every other kind kept pace with this; while the detestable folly of the times thought it was refining upon pleasure to make it unnatural. There were at Rome men called *spintriæ*, whose sole trade it was to study new modes of pleasure; and these were universally favourites of the great. The senators were long fallen from their authority, and were no less estranged from their integrity and honour. Their whole study seemed to be, how to invent new ways of flattering the emperor, and various methods of tormenting his supposed enemies. The people were still more corrupt: they had, for some years, been accustomed to live in idleness, upon the donations of the emperor; and, being satisfied with subsistence, entirely gave up their freedom. Too effeminate and cowardly to go to war, they only railed against their governors; so that they were bad soldiers and seditious citizens. In the 18th year of this monarch's reign, Christ was crucified.

281 Christ crucified.

Shortly after his death, Pilate is said to have written to Tiberius an account of his passion, resurrection, and miracles; upon which the emperor made a report of the whole to the senate, desiring that Christ might be accounted a god by the Romans. But the senate being displeased that the proposal had not come first from themselves, refused to allow of his apotheosis; alleging an ancient law, which gave them the superintendance in all matters of religion. They even went so far, as by an edict to command that all Christians should leave the city: but Tiberius, by another edict, threatened death to all such as should accuse them; by which means they continued unmolested during the rest of his reign.

No monarch ever came to the throne with more advantages than Caligula. He was the son of Germanicus, who had been the darling of the army and the people. He was bred among the soldiers, from whom he received the name of *Caligula*, from the short buskin, called *caliga*, that was worn by the common centinels, and which was also usually worn by him. As he approached Rome, the principal men of the state went out in crowds to meet him. He received the congratulations of the people on every side, all equally pleased in being free from the cruelties of Tiberius, and in hoping new advantages from the virtues of his successor.

Caligula seemed to take every precaution to impress them with the opinion of an happy change. Amidst the rejoicings of the multitude, he advanced mourning, with the dead body of Tiberius, which the soldiers brought to be burnt at Rome, according to the custom of that time. Upon his entrance into the city, he was received with new titles of honour by the senate, whose chief employment seemed now to be, the art of increasing their emperor's vanity. He was left co-heir with Gemellus, grandson to Tiberius; but they set aside the nomination, and declared Caligula sole successor to the empire. The joy for this election was not confined to the narrow bounds of Italy; it spread through the whole empire, and victims without number were sacrificed upon the occasion. Some of the people, upon his going into the island of Campania, made vows for his return; and shortly after, when he fell sick, the multitudes crowded whole nights round his palace, and some even devoted themselves to death in case he recovered, setting up bills of their resolutions in the streets. In this affection of the citizens, strangers themselves seemed ambitious of sharing. Artabanus, king of Parthia, sought the emperor's alliance with assiduity. He came to a personal conference with one of his legates; passed the Euphrates, adored the Roman eagles, and kissed the emperor's images; so that the whole world seemed combined to praise him for virtues which they supposed him to possess.

282 Caligula begins to reign well.

The new emperor at first seemed extremely careful of the public favour; and having performed the funeral solemnities of Tiberius, he hastened to the islands of Pandataria and Pontia, to remove the ashes of his mother and brothers, exposing himself to the dangers of tempestuous weather, to give a lustre to his piety. Having brought them to Rome, he instituted annual solemnities in their honour, and ordered the month of September to be called *Germanicus*, in memory of his father. These ceremonies being over, he conferred the same honours upon his grandmother Antonia, which had before been given to Livia; and ordered all informations to be burnt, that any ways exposed the enemies of his family. He even refused a paper that was offered him, tending to the discovery of a conspiracy against him; alleging, That he was conscious of nothing to deserve any man's hatred, and therefore had no fears from their machinations. He caused the institutions of Augustus, which had been disused in the reign of Tiberius, to be revived; undertook to reform many abuses in the state, and severely punished corrupt governors. Among others, he banished Pontius Pilate into Gaul, where this unjust magistrate afterwards put an end to his life by suicide. He banished the spintriæ,

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or inventors of abominable recreations, from Rome; attempted to restore the ancient manner of electing magistrates by the suffrages of the people; and gave them a free jurisdiction, without any appeal to himself. Although the will of Tiberius was annulled by the senate, and that of Livia suppressed by Tiberius, yet he caused all their legacies to be punctually paid; and in order to make Gemellus amend for missing the crown, he caused him to be elected Princeps Juventutis, or principal of the youth. He restored some kings to their dominions who had been unjustly dispossessed by Tiberius, and gave them the arrears of their revenues. And, that he might appear an encourager of every virtue, he ordered a female slave a large sum of money for enduring the most exquisite torments without discovering the secrets of her master. So many concessions, and such apparent virtue, could not fail of receiving just applause. A shield of gold, bearing his image, was decreed to be carried annually to the Capitol, attended by the senate and the sons of the nobility singing in praise of the emperor's virtues. It was likewise ordained, that the day on which he was appointed to the empire should be called *Publicia*; implying, that when he came to govern, the city received a new foundation.

283 But becomes a most outrageous tyrant.

In less than eight months all this shew of moderation and clemency vanished; while furious passions, unexampled avarice, and capricious cruelty, began to take their turn in his mind. As most of the cruelties of Tiberius arose from suspicion, so most of those committed by Caligula took rise from prodigality. Some indeed assert, that a disorder which happened soon after his accession to the empire, entirely discomposed his understanding. However this may be, madness itself could scarce dictate cruelties more extravagant, or inconsistencies more ridiculous, than are imputed to him; some of them appear almost beyond belief, as they seem entirely without any motive to incite such barbarities.

The first object of his cruelty was a person named *Politus*, who had devoted himself to death, in case the emperor, who was then sick, should recover. When Caligula's health was re-established, he was informed of the zeal of Politus, and actually compelled him to complete his vow. This ridiculous devotee was therefore led round the city, by children, adorned with chaplets, and then put to death, being thrown headlong from the ramparts. Another, named *Secundus*, had vowed to fight in the amphitheatre upon the same occasion. To this he was also compelled, the emperor himself choosing to be a spectator of the combat. However, he was more fortunate than the former, being so successful as to kill his adversary, by which he obtained a release from his vow. Gemellus was the next who suffered from the tyrant's inhumanity. The pretence against him was, that he had wished the emperor might not recover, and that he had taken a counter-poison to secure him from any secret attempts against his life. Caligula ordered him to kill himself; but as the unfortunate youth was ignorant of the manner of doing it, the emperor's messengers soon instructed him in the fatal lesson. Silenus, the emperor's father-in-law, was the next that was put to death upon slight suspicions; and Gercinus, a senator of noted integrity, refusing to witness falsely against him, shared his fate. After these followed a crowd of victims to the emperor's avarice or suspicion. The pretext against them was their enmity to his family; and in proof of his accusations he produced those very memorials which but a while before he pretended to have burnt. Among the number of those who were sacrificed to his jealousy, was Macro, the late favourite of Tiberius, and the person to whom Caligula owed his empire. He was accused of many crimes, some of which were common to the emperor as well as to him, and his death brought on the ruin of his whole family.

These cruelties, however, only seemed the first fruits of a mind naturally timid and suspicious: his vanity and profusion soon gave rise to others which were more atrocious, as they sprung from less powerful motives. His pride first began by assuming to himself the title of *ruler*, which was usually granted only to kings. He would also have taken the crown and diadem, had he not been advised that he was already superior to all the monarchs of the world. Not long after, he assumed divine honours, and gave himself the names of such divinities as he thought most agreeable to his nature. For this purpose he caused the heads of the statues of Jupiter and some other gods to be struck off, and his own to be put in their places. He frequently seated himself between Castor and Pollux, and ordered all who came to their temple to worship, should pay their adorations only to him; nay, at last he altered their temple to the form of a portico, which he joined to his palace, that the very gods, as he said, might serve him in the quality of porters.

He was not less notorious for the depravation of his appetites than for his ridiculous presumptions. Neither person, place, nor sex, were obstacles to the indulgence of his unnatural lusts. There was scarce a lady of any quality in Rome that escaped his lewdness; and, indeed, such was the degeneracy of the times, that there were few ladies who did not think this disgrace an honour. He committed incest with his three sisters, and at public feasts they lay with their heads upon his bosom by turns. Of these he prostituted Livia and Agrippina to his vile companions, and then banished them as adulteresses and conspirators against his person. As for Drusilla, he took her from her husband Longinus, and kept her as his wife. Her he loved so affectionately, that, being sick, he appointed her as heiress of his empire and fortune; and she happening to die before him, he made her a goddess. Nor did her example when living, appear more dangerous to the people than her divinity when dead. To mourn for her death was a crime, as she was become a goddess; and to rejoice for her divinity was capital, because she was dead. Nay, even silence itself was an unpardonable insensibility, either of the emperor's loss or his sister's advancement. Thus he made his sister subservient to his profit, as before he had done to his pleasure; raising vast sums of money by granting pardons to some, and by confiscating the goods of others. As to his marriages, whether he contracted them with greater levity, or dissolved them with greater injustice, is not easy to determine. Being present at the nuptials of Livia Orestilla with Piso, as soon as the solemnity was over, he commanded her to be brought to him as his own wife, and then dismissed her in a few days. He soon after banished her upon suspicion of cohabiting with her husband after she was parted from him. He was enamoured of Lollia Paulina, upon a bare relation of her grand-

mother's beauty; and thereupon took her from her husband, who commanded in Macedonia: notwithstanding which, he repudiated her as he had done the former, and likewise forbad her future marrying with any other. The wife who caught most firmly upon his affections was Milonia Cæsonia, whose chief merit lay in her perfect acquaintance with all the alluring arts of her sex, for she was otherwise possessed neither of youth nor beauty. She continued with him during his reign; and he loved her so ridiculously, that he sometimes showed her to his soldiers dressed in armour, and sometimes to his companions stark naked.

But of all his vices, his prodigality was the most remarkable, and that which in some measure gave rise to the rest. The luxuries of former emperors were simplicity itself, when compared to those which he practised. He contrived new ways of bathing, where the richest oils and most precious perfumes were exhausted with the utmost profusion. He found out dishes of immense value; and had even jewels, as we are told, dissolved among his sauces. He sometimes had services of pure gold presented before his guests instead of meat; observing, that a man should be an œconomist or an emperor.

For several days together he flung considerable sums of money among the people. He ordered ships of a prodigious bulk to be built of cedar, the stems of ivory inlaid with gold and jewels, the sails and tackling of various silks, while the decks were planted with the choicest fruit trees, under the shade of which he often dined. Here, attended by all the ministers of his pleasures, the most exquisite singers, and the most beautiful youths, he coasted along the shore of Campania with great splendor. All his buildings seemed rather calculated to raise astonishment, than to answer the purposes of utility. But the most notorious instance of his fruitless profusion was the vast bridge at Puteoli, which he undertook in the third year of his reign. To satisfy his desire of being master as well of the ocean as the land, he caused an infinite number of ships to be fastened to each other, so as to make a floating bridge from Baiæ to Puteoli, across an arm of the sea three miles and an half broad. The ships being placed in two rows, in form of a crescent, were secured to each other with anchors, chains, and cables. Over these were laid vast quantities of timber, and upon that earth, so as to make the whole resemble one of the streets of Rome. He next caused several houses to be built upon his new bridge, for the reception of himself and his attendants, into which fresh water was conveyed by pipes from land. He then repaired thither with all his court, attended by prodigious throngs of people, who came from all parts to be spectators of such an expensive pageant. It was there that Caligula, adorned with all the magnificence of eastern royalty, sitting on horseback with a civic crown and Alexander's breast-plate, attended by the great officers of the army, and all the nobility of Rome, entered at one end of the bridge, and with ridiculous importance rode to the other. At night, the number of torches and other illuminations with which this expensive structure was adorned, cast such a gleam as illuminated the whole bay, and all the neighbouring mountains. This seemed to give the weak emperor new cause for exultation; boasting that he had turned night into day, as well as sea into land. The next morning he again rode over in a triumphant chariot, followed by a numerous train of charioteers, and all his soldiers in glittering armour. He then ascended a rostrum erected for the occasion, where he made a solemn oration in praise of the greatness of his enterprise, and the assiduity of his workmen and his army. He then distributed rewards among his men, and a splendid feast succeeded. In the midst of the entertainment many of his attendants were thrown into the sea; several ships filled with spectators were attacked and sunk in an hostile manner; and although the majority escaped through the calmness of the weather, yet many were drowned; and some who endeavoured to save themselves by climbing to the bridge, were struck down again by the emperor's command. The calmness of the sea during this pageant, which continued for two days, furnished Caligula with fresh opportunities for boasting; being heard to say, "that Neptune took care to keep the sea smooth and serene, merely out of reverence to him."

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Expences like these, it may be naturally supposed, must have exhausted the most unbounded wealth: in fact, after reigning about a year, Caligula found his revenues totally exhausted; and a fortune of about 18,000,000 of our money, which Tiberius had amassed together, entirely spent in extravagance and folly. Now, therefore, his prodigality put him upon new methods of supplying the exchequer; and as before his profusion, so now his rapacity became boundless. He put in practice all kinds of rapine and extortion; while his principal study seemed to be the inventing new imposts and illicit confiscations. Every thing was taxed, to the very wages of the meanest tradesman. He caused freemen to purchase their freedom a second time; and poisoned many who had named him for their heir, to have the immediate possession of their fortunes. He set up a brothel in his own palace, by which he gained considerable sums by all the methods of prostitution. He also kept a gaming-house, in which he himself presided, scrupling none of the meanest tricks in order to advance his gains. On a certain occasion having had a run of ill luck, he saw two rich knights passing through his court; upon which he suddenly rose up, and causing both to be apprehended, confiscated their estates, and then joining his former companions, boasted that he never had a better throw in his life. Another time, wanting money for a stake, he went down and caused several noblemen to be put to death; and then returning, told the company that they sat playing for trifles while he had won 60,000 sesterces at a cast.

284 Ridiculous expeditions against Britain and Germany.

Such insupportable and capricious cruelties produced many secret conspiracies against him; but these were for a while deferred, upon account of his intended expedition against the Germans and Britons, which he undertook in the third year of his reign. For this purpose, he caused numerous levies to be made in all parts of the empire; and talked with so much resolution, that it was universally believed he would conquer all before him. His march perfectly indicated the inequality of his temper: sometimes it was so rapid, that the cohorts were obliged to leave their standards behind them; at other times it was so slow, that it more resembled a pompous procession than a military expedition. In this disposition he would cause himself to be carried on eight mens shoulders, and order all the neighbouring

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neighbouring cities to have their ſtreets well ſwept and watered to defend him from the duſt. However, all theſe mighty preparations ended in nothing. Inſtead of conquering Britain, he only gave refuge to one of its baniſhed princes; and this he deſcribed in a letter to the ſenate, as taking poſſeſſion of the whole iſland. Inſtead of conquering Germany, he only led his army to the ſea-ſhore in Batavia. There diſpoſing his engines and warlike machines with great ſolemnity, and drawing up his men in order of battle, he went on board his galley, with which coaſting along, he commanded his trumpets to ſound and the ſignal to be given as if for an engagement; upon which, his men having had previous orders, immediately fell to gathering the ſhells that lay upon the ſhore into their helmets, terming them the *ſpoils of the conquered ocean, worthy of the palace and the capitol.* After this doughty expedition, calling his army together as a general after victory, he harangued them in a pompous manner, and highly extolled their atchievements; and then diſtributing money among them, diſmiſſed them with orders to be joyful, and congratulated them upon their riches. But that ſuch exploits ſhould not paſs without a memorial, he cauſed a lofty tower to be erected by the ſea-ſide; and ordered the galleys in which he had put to ſea to be conveyed to Rome in a great meaſure by land.

285 Meanneſs of the ſenate.

After numberleſs inſtances of folly and cruelty in this expedition, among which he had intentions of deſtroying the whole army that had formerly mutinied under his father Germanicus, he began to think of a triumph. The ſenate, who had long been the timid miniſters of his pride and cruelty, immediately ſet about conſulting how to ſatisfy his expectations. They conſidered that a triumph would even to himſelf, appear as a burleſque upon his expedition: they therefore decreed him only an ovation. Having come to this reſolution, they ſent him a deputation, informing him of the honours granted him, and the decree, which was drawn up in terms of the moſt extravagant adulation. However, their flattery was far from ſatisfying his pride. He conſidered their conduct rather as a diminution of his power, than an addition to his glory. He therefore ordered them, on pain of death, not to concern themſelves with his honours; and being met by their meſſengers on the way, who invited him to come and partake of the preparations which the ſenate had decreed, he informed them that he would come; and then laying his hand upon his ſword, added, that he would bring that alſo with him. In this manner, either quite omitting his triumph, or deferring it to another time, he entered the city with only an ovation; while the ſenate paſſed the whole day in acclamations in his praiſe, and ſpeeches filled with the moſt exceſſive flattery. This conduct in ſome meaſure ſerved to reconcile him, and ſoon after their exceſſive zeal in his cauſe entirely gained his favour. For it happened that Protogenes, who was one of the moſt intimate and the moſt cruel of his favourites, coming into the houſe, was fawned upon by the whole body of the ſenate, and particularly by Proculus. Whereupon Protogenes with a fierce look, aſked how one who was ſuch an enemy to the emperor could be ſuch a friend to him? There needed no more to excite the ſenate againſt Proculus. They inſtantly ſeized upon him, and violently tore him in pieces; plainly ſhowing by their conduct, that tyranny in a prince produces cruelty in thoſe whom he governs.—It was after returning from this extravagant expedition, that he was waited upon by a deputation of the Jews of Alexandria, who came to deprecate his anger for not worſhipping his divinity as other nations had done. The emperor gave them a very ungracious reception, and would probably have deſtroyed their countrymen if he had not ſoon after been cut off.

This affair of the Jews remained undecided during his reign; but it was at laſt ſettled by his ſucceſſor to their ſatisfaction. It was upon this occaſion that Philo made the following remarkable anſwer to his aſſociates, who were terrified with apprehenſions of the emperor's indignation; "Fear nothing (cried he to them), Caligula, by declaring againſt us, puts God on our ſide."

The continuation of this horrid reign ſeemed to threaten univerſal calamity: however, it was but ſhort. 286 A conſpiracy formed against the emperor.
There had already been ſeveral conſpiracies formed to deſtroy the tyrant, but without ſucceſs. That which at laſt ſucceeded in delivering the world of this monſter, was concerted under the influence of Caſſius Cherea, tribune of the prætorian bands. This was a man of experienced courage, an ardent admirer of freedom, and conſequently an enemy to tyrants. Beſides the motives which he had in common with other men, he had received repeated inſults from Caligula, who took all occaſions of turning him into ridicule, and impeaching him of cowardice, merely becauſe he had an effeminate voice. Whenever Cherea came to demand the watch-word from the emperor, according to cuſtom, he always gave him either Venus, Adonis, or ſome ſuch, implying effeminacy and ſoftneſs. He therefore ſecretly imparted his deſigns to ſeveral ſenators and knights whom he knew to have received perſonal injuries from Caligula, or to be apprehenſive of thoſe to come. Among theſe was Valerius Aſiaticus, whoſe wife the emperor had debauched. Annius Vincianus, who was ſuſpected of having been in a former conſpiracy, was now deſirous of really engaging in the firſt deſign that offered. Beſides theſe, were Clemens the prefect; and Caliſtus, whoſe riches made him obnoxious to the tyrant's reſentment.

While theſe were deliberating upon the moſt certain and ſpeedy method of deſtroying the tyrant, an unexpected incident gave new ſtrength to the conſpiracy. Pompedius, a ſenator of diſtinction, having been accuſed before the emperor, of having ſpoken of him with diſreſpect, the informer cited one Quintilia, an actreſs, to confirm his accuſation. Quintilia, however, was poſſeſſed of a degree of fortitude not eaſily found. She denied the fact with obſtinacy; and being put to the torture at the informer's requeſt, ſhe bore the ſevereſt torments of the rack with unſhaken conſtancy. But what is moſt remarkable of her reſolution is, that ſhe was acquainted with all the particulars of the conſpiracy; and although Cherea was appointed to preſide at her torture, ſhe revealed nothing: on the contrary, when ſhe was led to the rack, ſhe trod upon the toe of one of the conſpirators, intimating at once her knowledge of the confederacy, and her own reſolution not to divulge it. In this manner ſhe ſuffered until all her limbs were diſlocated; and in that deplorable ſtate was preſented to the emperor, who ordered her a gratuity for what ſhe had ſuffered. Cherea could now no longer

ger contain his indignation at being thus made the instrument of a tyrant's cruelty. He therefore proposed to the conspirators to attack him as he went to offer sacrifices in the Capitol, or while he was employed in the secret pleasures of the palace. The rest, however, were of opinion, that it was best to fall upon him when he should be unattended; by which means they would be more certain of success. After several deliberations, it was at last resolved to attack him during the continuance of the Palatine games, which lasted four days; and to strike the blow when his guards should have the least opportunity to defend him. In consequence of this, the three first days of the games passed without affording that opportunity which was so ardently desired. Cherea now, therefore, began to apprehend, that deferring the time of the conspiracy might be a mean to divulge it: he even began to dread, that the honour of killing the tyrant might fall to the lot of some other person more bold than himself. Wherefore, he at last resolved to defer the execution of his plot only to the day following, when Caligula should pass through a private gallery, to some baths not far distant from the palace.

The last day of the games was more splendid than the rest; and Caligula seemed more sprightly and condescending than usual. He took great amusement in seeing the people scramble for the fruits and other rarities thrown by his order among them; and seemed no way apprehensive of the plot formed for his destruction. In the mean time, the conspiracy began to transpire; and had he possessed any friends, it could not have failed of being discovered. The conspirators waited a great part of the day with the most extreme anxiety; and at one time Caligula seemed resolved to spend the whole day without any refreshment. This unexpected delay entirely exasperated Cherea; and had he not been restrained, he would have gone and perpetrated his design in the midst of all the people. Just at that instant, while he was yet hesitating what he should do, Asprenas, one of the conspirators, persuaded Caligula to go to the bath and take some slight refreshment, in order to enjoy the rest of the entertainment with greater relish. The emperor therefore rising up, the conspirators used every precaution to keep off the throng, and to surround him, under pretence of greater assiduity. Upon entering into the little vaulted gallery that led to the bath, he was met by a band of Grecian children who had been instructed in singing, and were come to perform in his presence. He was once more therefore going to return into the theatre with them, had not the leader of the band excused himself, as having a cold. This was the moment that Cherea seized to strike him to the ground; crying out, "Tyrant, think upon this." Immediately after, the other conspirators rushed in; and while the emperor continued to resist, crying out, that he was not yet dead, they dispatched him with 30 wounds, in the 29th year of his age, after a short reign of three years ten months and eight days. With him, his wife and infant daughter also perished; the one being stabbed by a centurion, the other having its brains dashed out against the wall. His coin was also melted down by a decree of the senate; and such precautions were taken, that all seemed willing, that neither his features nor his name might be transmitted to posterity.

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288 Great confusion ensues on his death.

As soon as the death of Caligula was made public, it produced the greatest confusion in all parts of the city. The conspirators, who only aimed at destroying a tyrant without attending to a successor, had all sought safety by retiring to private places. Some thought the report of the emperor's death was only an artifice of his own, to see how his enemies would behave. Others averred that he was still alive, and actually in a fair way to recover. In this interval of suspense, the German guards finding it a convenient time to pillage, gave a loose to their licentiousness, under a pretence of revenging the emperor's death. All the conspirators and senators that fell in their way received no mercy: Asprenas, Norbanus, and Anteius, were cut in pieces. However, they grew calm by degrees, and the senate was permitted to assemble, in order to deliberate upon what was necessary to be done in the present emergency.

In this deliberation, Saturninus, who was then consul, insisted much upon the benefits of liberty; and talked in raptures of Cherea's fortitude, alleging that it deserved the highest reward. This was a language highly pleasing to the senate. Liberty now became the favourite topic; and they even ventured to talk of extinguishing the very name of Cæsar. Impressed with this resolution, they brought over some cohorts of the city to their side, and boldly seized upon the Capitol. But it was now too late for Rome to regain her pristine freedom; the populace and the army opposing their endeavours. The former were still mindful of their ancient hatred to the senate; and remembered the donations and public spectacles of the emperors with regret. The latter were sensible they could have no power but in a monarchy; and had some hopes that the election of the emperor would fall to their determination. In this opposition of interests, and variety of opinions, chance seemed at last to decide the fate of the empire. Some soldiers happening to run about the palace, discovered Claudius, Caligula's uncle, lurking in a secret place, where he had hid himself through fear. Of this personage, who had hitherto been despised for his imbecillity, they resolved to make an emperor: and accordingly carried him upon their shoulders to the camp, where they proclaimed him at a time he expected nothing but death.

289 Claudius made emperor.

The senate now, therefore, perceiving that force alone was likely to settle the succession, were resolved to submit, since they had no power to oppose. Claudius was the person most nearly allied to the late emperor, then living; being the nephew of Tiberius, and the uncle of Caligula. The senate therefore passed a decree, confirming him in the empire; and went soon after in a body, to render him their compulsive homage. Cherea was the first who fell a sacrifice to the jealousy of this new monarch. He met death with all the fortitude of an ancient Roman; desiring to die by the same sword with which he had killed Caligula. Lupus, his friend, was put to death with him; and Sabinus, one of the conspirators, laid violent hands on himself.

Claudius was 50 years old when he began to reign. The complicated diseases of his infancy had in some ...easure affected all the faculties both of his body and ...ind. He was continued in a state of pupillage much longer than was usual at that time; and seemed, in

Rome. every part of his life incapable of conducting himself. Not that he was entirely destitute of understanding, since he had made a tolerable proficiency in the Greek and Latin languages, and even wrote an history of his own time; which, however destitute of other merit, was not contemptible in point of style. Nevertheless, with this share of erudition, he was unable to advance himself in the state, and seemed utterly neglected until he was placed all at once at the head of affairs.

290 His happy administration in the beginning of his government.

The commencement of his reign gave the most promising hopes of an happy continuance. He began by passing an act of oblivion for all former words and actions, and disannulled all the cruel edicts of Caligula. He forbade all persons, upon severe penalties, to sacrifice to him as they had done to Caligula; was assiduous in hearing and examining complaints; and frequently administered justice in person; tempering by his mildness the severity of the law. We are told of his bringing a woman to acknowledge her son, by adjudging her to marry him. The tribunes of the people coming one day to attend him when he was on his tribunal, he courteously excused himself for not having room for them to sit down. By this deportment he so much gained the affections of the people, that upon a vague report of his being slain by surprise, they ran about the streets in the utmost rage and consternation, with horrid imprecations against all such as were accessary to his death; nor could they be appeased, until they were assured, with certainty, of his safety. He took a more than ordinary care that Rome should be continually supplied with corn and provisions, securing the merchants against pirates. He was not less assiduous in his buildings, in which he excelled almost all that went before him. He constructed a wonderful aquæduct, called after his own name, much surpassing any other in Rome, either for workmanship or plentiful supply. It brought water from 40 miles distance, through great mountains, and over deep valleys; being built on stately arches, and furnishing the highest parts of the city. He made also an haven at Ostia; a work of such immense expence, that his successors were unable to maintain it. But his greatest work of all was the draining of the lake Fucinus, which was the largest in Italy, and bringing its water into the Tiber, in order to strengthen the current of that river. For effecting this, among other vast difficulties, he mined through a mountain of stone three miles broad, and kept 30,000 men employed for 11 years together.

To this solicitude for the internal advantages of the state, he added that of a watchful guardianship over the provinces. He restored Judea to Herod Agrippa, which Caligula had taken from Herod Antipas, his uncle, the man who had put John the Baptist to death, and who was banished by order of the present emperor. Claudius also restored such princes to their kingdoms as had been unjustly dispossessed by his predecessors; but deprived the Lycians and Rhodians of their liberty, for having promoted insurrections, and crucified some citizens of Rome.

291 His expedition against Britain.

He even undertook to gratify the people by foreign conquest. The Britons, who had, for near 100 years, been left in sole possession of their own island, began to seek the mediation of Rome, to quell their intestine commotions. The principal man who desired to subject his native country to the Roman dominion, was one Bericus, who, by many arguments, persuaded the emperor to make a descent upon the island, magnifying the advantages that would attend the conquest of it. In pursuance of his advice, therefore, Plautius the prætor was ordered to pass over into Gaul, and make preparations for this great expedition. At first, indeed, his soldiers seemed backward to embark; declaring, that they were unwilling to make war beyond the limits of the world, for so they judged Britain to be. However, they were at last persuaded to go; and the Britons, under the conduct of their king Cynobelinus, were several times overthrown. And these successes soon after induced Claudius to go into Britain in person, upon pretence that the natives were still seditious, and had not delivered up some Roman fugitives who had taken shelter among them; but for a particular account of the exploits of the Romans in this island, see the article England.

292 Is indebted to his favourite commission many of cruelties.

But though Claudius gave in the beginning of his reign the highest hopes of an happy continuance, he soon began to lessen his care for the public, and to commit to his favourites all the concerns of the empire. This weak prince was unable to act but under the direction of others. The chief of his directors was his wife Messalina: whose name is almost become a common appellation to women of abandoned characters. However, she was not less remarkable for her cruelties than her lusts; as by her intrigues she destroyed many of the most illustrious families of Rome. Subordinate to her were the emperor's freedmen; Pallas, the treasurer; Narcissus, the secretary of state; and Callistus, the master of the requests. These entirely governed Claudius; so that he was only left the fatigues of ceremony, while they were possessed of all the power of the state.

It would be tedious to enumerate the various cruelties which these insidious advisers obliged the feeble emperor to commit: those against his own family will suffice. Appius Silanus, a person of great merit, who had been married to the emperor's mother-in-law, was put to death upon the suggestions of Messalina. After him he slew both his sons in-law, Silanus and Pompey, and his two nieces the Livias, one the daughter of Drusus, the other of Germanicus; and all without permitting them to plead in their defence, or even without assigning any cause for his displeasure. Great numbers of others fell a sacrifice to the jealousy of Messalina and her minions; who bore so great a sway in the state, that all offices, dignities, and governments, were entirely at their disposal. Every thing was put to sale: they took money for pardons and penalties; and accumulated, by these means, such vast sums, that the wealth of Crœsus was considered as nothing in comparison. One day, the emperor complaining that his exchequer was exhausted, he was ludicrously told, that it might be sufficiently replenished if his two freedmen would take him into partnership. Still, however, during such corruption, he regarded his favourites with the highest esteem, and even solicited the senate to grant them peculiar marks of their approbation. These disorders in the ministers of government did not fail to produce conspiracies against the emperor. Statius Corvinus and Gallus Asinius formed a conspiracy against him. Two knights, whose names are not told us, privately combined to assassinate him. But the revolt which

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which gave him the greateſt uneaſineſs, and which was puniſhed with the moſt unrelenting ſeverity, was that of Camillus, his lieutenant-general in Dalmatia. This general, incited by many of the principal men of Rome, openly rebelled againſt him, and aſſumed the title of *emperor*. Nothing could exceed the terrors of Claudius, upon being informed of this revolt: his nature and his crimes had diſpoſed him to be more cowardly than the reſt of mankind; ſo that when Camillus commanded him by letters to relinquiſh the empire, and retire to a private ſtation, he ſeemed inclined to obey. However, his fears upon this occaſion were ſoon removed: for the legions which had declared for Camillus being terrified by ſome prodigies, ſhortly after abandoned him; ſo that the man whom but five days before they had acknowledged as emperor, they now thought it no infamy to deſtroy. The cruelty of Meſſalina and her minions upon this occaſion ſeemed to have no bounds. They ſo wrought upon the emperor's fears and ſuſpicions, that numbers were executed without trial or proof; and ſcarce any, even of thoſe who were but ſuſpected, eſcaped, unleſs by ranſoming their lives with their fortunes.

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By ſuch cruelties as theſe, the favourites of the emperor endeavoured to eſtabliſh his and their own authority: but in order to increaſe the neceſſity of their aſſiſtance, they laboured to augment the greatneſs of his terrors. He now became a prey to jealouſy and diſquietude. Being one day in the temple, and finding a ſword that was left there by accident, he convened the ſenate in a fright, and informed them of his danger. After this he never ventured to go to any feaſt without being ſurrounded by his guards, nor would he ſuffer any man to approach him without a previous ſearch. Thus wholly employed by his anxiety for ſelf-preſervation, he entirely left the care of the ſtate to his favourites, who by degrees gave him a reliſh for ſlaughter. From this time he ſeemed delighted with inflicting tortures; and on a certain occaſion continued a whole day at the city Tibur, waiting for an hangman from Rome, that he might feaſt his eyes with an execution in the manner of the ancients. Nor was he leſs regardleſs of the perſons he condemned, than cruel in the infliction of their puniſhment. Such was his extreme ſtupidity, that he would frequently invite thoſe to ſupper whom he had put to death but the day before; and often denied the having given orders for an execution, but a few hours after pronouncing ſentence. Suetonius aſſures us, that there were no leſs than 35 ſenators, and above 300 knights, executed in his reign; and that ſuch was his unconcern in the midſt of ſlaughter, that one of the tribunes bringing him an account of a certain ſenator who was executed, he quite forgot his offence, but calmly acquieſced in his puniſhment.

94 ava- iewd- of the reſs Meſſalina.

In this manner was Claudius urged on by Meſſalina to commit cruelties, which he conſidered only as wholeſome ſeverities; while, in the mean time, ſhe put no bounds to her enormities. The impunity of her paſt vices only increaſing her confidence to commit new, her debaucheries became every day more notorious, and her lewdneſs exceeded what had ever been ſeen at Rome. She cauſed ſome women of the firſt quality to commit adultery in the preſence of their huſbands, and deſtroyed ſuch as refuſed to comply. After appearing for ſome years inſatiable in her deſires, ſhe at length fixed her affections upon Caius Silius, the moſt beautiful youth in Rome. Her love for the young Roman ſeemed to amount even to madneſs. She obliged him to divorce his wife Junia Syllana, that ſhe might entirely poſſeſs him herſelf. She obliged him to accept of immenſe treaſures and valuable preſents; cohabiting with him in the moſt open manner, and treating him with the moſt ſhameleſs familiarity. The very imperial ornaments were transferred to his houſe; and the emperor's ſlaves and attendants had orders to wait upon the adulterer. Nothing was wanting to complete the inſolence of their conduct, but their being married together; and this was ſoon after effected. They relied upon the emperor's imbecility for their ſecurity, and only waited till he retired to Oſtia to put their ill-judged project in execution. In his abſence, they celebrated their nuptials with all the ceremonies and ſplendor which attend the moſt confident ſecurity. Meſſalina gave a looſe to her paſſion, and appeared as a Bacchanalian with a thyrſus in her hand; while Silius aſſumed the character of Bacchus, his body being adorned with robes imitating ivy, and his legs covered with buſkins. A troop of ſingers and dancers attended, who heightened the revel with the moſt laſcivious ſongs and the moſt indecent attitudes. In the midſt of this riot, one Valens, a buffoon, is ſaid to have climbed a tree; and being demanded what he ſaw, anſwered that he perceived a dreadful ſtorm coming from Oſtia. What this fellow ſpoke at random was actually at that time in preparation. It ſeems that ſome time before there had been a quarrel between Meſſalina and Narciſſus, the emperor's firſt freedman. This ſubtle minister therefore deſired nothing more than an opportunity of ruining the empreſs, and he judged this to be a moſt favourable occaſion. He firſt made the diſcovery by means of two concubines who attended the emperor, who were inſtructed to inform him of Meſſalina's marriage as the news of the day, while Narciſſus himſelf ſtepped in to confirm their information. Finding it operated upon the emperor's fears as he could wiſh, he reſolved to alarm him ſtill more by a diſcovery of all Meſſalina's projects and attempts. He aggravated the danger, and urged the expediency of ſpeedily puniſhing the delinquents. Claudius, quite terrified at ſo unexpected a relation, ſuppoſed the enemy were already at his gates; and frequently interrupted his freedman, by aſking if he was ſtill maſter of the empire. Being aſſured that he yet had it in his power to continue ſo, he reſolved to go and puniſh the affront offered to his dignity without delay. Nothing could exceed the conſternation of Meſſalina and her thoughtleſs companions, upon being informed that the emperor was coming to diſturb their feſtivity. Every one retired in the utmoſt confuſion. Silius was taken. Meſſalina took ſhelter in ſome gardens which ſhe had lately ſeized upon, having expelled Aſiaticus the true owner, and put him to death. From thence ſhe ſent Britannicus, her only ſon by the emperor, with Octavia her daughter, to intercede for her, and implore his mercy. She ſoon after followed them herſelf; but Narciſſus had ſo fortified the emperor againſt her arts, and contrived ſuch methods of diverting his attention from her defence, that ſhe was obliged to return in deſpair. Narciſſus being thus far ſucceſsful, led Claudius to

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to the house of the adulterer, there showing him the apartments adorned with the spoils of his own palace; and then conducting him to the prætorian camp, revived his courage by giving him assurances of the readiness of the soldiers to defend him. Having thus artfully secured his fears and resentment, the wretched Silius was commanded to appear: who, making no defence, was instantly put to death in the emperor's presence. Several others shared the same fate; but Messalina still flattered herself with hopes of pardon. She resolved to leave neither prayers nor tears unattempted to appease the emperor. She sometimes even gave a loose to her resentment, and threatened her accusers with vengeance. Nor did she want ground for entertaining the most favourable expectations. Claudius having returned from the execution of her paramour, and having allayed his resentment in a banquet, began to relent. He now therefore commanded his attendants to apprise that miserable creature, meaning Messalina, of his resolution to hear her accusation the next day, and ordered her to be in readiness with her defence. The permission to defend herself would have been fatal to Narcissus; wherefore he rushed out, and ordered the tribunes and centurions who were in readiness to execute her immediately by the emperor's command. Claudius was informed of her death in the midst of his banquet; but this insensible idiot showed not the least appearance of emotion. He continued at table with his usual tranquillity; and the day following, while he was sitting at dinner, he asked why Messalina was absent, as if he had totally forgotten her crimes and her punishment.

295 She is put to death.

Claudius being now a widower, declared publicly, that as he had hitherto been unfortunate in his marriages, he would remain single for the future, and that he would be contented to forfeit his life in case he broke his resolution. However, the resolutions of Claudius were but of short continuance. Having been accustomed to live under the controul of women, his present freedom was become irksome to him, and he was entirely unable to live without a director. His freedmen therefore perceiving his inclinations, resolved to procure him another wife; and, after some deliberation, they fixed upon Agrippina, the daughter of his brother Germanicus. This woman was more practised in vice than even the former empress. Her cruelties were more dangerous, as they were directed with greater caution: she had poisoned her former husband, to be at liberty to attend the calls of ambition; and, perfectly acquainted with all the infirmities of Claudius, only made use of his power to advance her own. However, as the late declaration of Claudius seemed to be an obstacle to his marrying again, persons were suborned to move in the senate, that he should be compelled to take a wife, as a matter of great importance to the commonwealth; and some more determined flatterers than the rest left the house, as with a thorough resolution, that instant, to constrain him. When this decree passed in the senate, Claudius had scarce patience to contain himself a day before the celebration of his nuptials. However, such was the detestation in which the people in general held these incestuous matches, that though they were made lawful, yet only one of his tribunes, and one of his freedmen, followed his example.

296 The emperor marries Agrippina.

Claudius having now received a new director, submitted with more implicit obedience than in any former part of his reign. Agrippina's chief aims were to gain the succession in favour of her own son Nero, and to set aside the claims of young Britannicus, son to the emperor and Messalina. For this purpose she married Nero to the emperor's daughter Octavia, a few days after her own marriage. Not long after this, she urged the emperor to strengthen the succession, in imitation of his predecessors, by making a new adoption; and caused him take in her son Nero, in some measure to divide the fatigues of government. Her next care was to increase her son's popularity, by giving him Seneca for a tutor. This excellent man, by birth a Spaniard, had been banished by Claudius, upon the false testimony of Messalina, who had accused him of adultery with Julia the emperor's niece. The people loved and admired him for his genius, but still more for his strict morality; and a part of his reputation necessarily devolved to his pupil. This subtle woman was not less assiduous in pretending the utmost affection for Britannicus; whom, however, she resolved in a proper time to destroy: but her jealousy was not confined to this child only; she, shortly after her accession, procured the deaths of several ladies who had been her rival in the emperor's affections. She displaced the captains of the guard, and appointed Burrhus to that command; a person of great military knowledge, and strongly attached to her interests. From that time she took less pains to disguise her power, and frequently entered the Capitol in a chariot; a privilege which none before were allowed, except of the sacerdotal order.

In the 12th year of this monarch's reign, she persuaded him to restore liberty to the Rhodians, of which he had deprived them some years before; and to remit the taxes of the city Ilium, as having been the progenitors of Rome. Her design in this was to increase the popularity of Nero, who pleaded the cause of both cities with great approbation. Thus did this ambitious woman take every step to aggrandize her son, and was even contented to become hateful herself to the public, merely to increase his popularity.

Such a very immoderate abuse of her power served at last to awaken the emperor's suspicions. Agrippina's imperious temper began to grow insupportable to him; and he was heard to declare, when heated with wine, that it was his fate to suffer the disorders of his wives, and to be their executioner. This expression sunk deep on her mind, and engaged all her faculties to prevent the blow. Her first care was to remove Narcissus, whom she hated upon many accounts, but particularly for his attachment to Claudius. This minister, for some time, opposed her designs; but at length thought fit to retire, by a voluntary exile, into Campania. The unhappy emperor, thus exposed to all the machinations of his insidious consort, seemed entirely regardless of the dangers that threatened his destruction. His affection for Britannicus was perceived every day to increase, which served also to increase the vigilance and jealousy of Agrippina. She now, therefore, resolved not to defer a crime which she had meditated a long while before; namely, that of poisoning her husband. She for some time, however, debated with herself in what manner she should administer the poison; as she feared too strong a dose would discover her treachery, and one too weak might fail of its effect.

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297 Claudius poisoned.

At length she determined upon a poison of singular efficacy to destroy his intellects, and yet not suddenly to terminate his life. As she had been long conversant in this horrid practice, she applied to a woman called *Locusta*, notorious for assisting on such occasions. The poison was given to the emperor among mushrooms, a dish he was particularly fond of. Shortly after having eaten, he dropped down insensible; but this caused no alarm, as it was usual with him to sit eating till he had stupified all his faculties, and was obliged to be carried off to his bed from the table. However, his constitution seemed to overcome the effects of the potion, when Agrippina resolved to make sure of him: wherefore she directed a wretched physician, who was her creature, to thrust a poisoned feather down his throat, under pretence of making him vomit; and this dispatched him.

The reign of the emperor, feeble and impotent as he was, produced no great calamities in the state, since his cruelties were chiefly levelled at those about his person. The list of the inhabitants of Rome at this time amounted to six millions eight hundred and forty-four thousand souls; a number little inferior to all the people of England at this day. The general character of the times was that of corruption and luxury: but the military spirit of Rome, though much relaxed from its former severity, still continued to awe mankind; and though during this reign, the empire might be justly said to be without a head, yet the terror of the Roman name alone kept the nations in obedience.

Claudius being destroyed, Agrippina took every precaution to conceal his death from the public, until she had settled her measures for securing the succession. A strong guard was placed at all the avenues of the palace, while she amused the people with various reports; at one time giving out that he was still alive; at another, that he was recovering. In the meanwhile, she made sure of the person of young Britannicus, under a pretence of affection for him. Like one overcome with the extremity of her grief, she held the child in her arms, calling him the dear image of his father, and thus preventing his escape. She used the same precautions with regard to his sisters, Octavia and Antonia; and even ordered an entertainment in the palace, as if to amuse the emperor. At last, when all things were adjusted, the palace-gates were thrown open, and Nero, accompanied by Burrhus, prefect of the Prætorian guards, issued to receive the congratulations of the people and the army. The cohorts then attending, proclaimed him with the loudest acclamations, though not without making some inquiries after Britannicus. He was carried in a chariot to the rest of the army; wherein having made a speech proper to the occasion, and promising them a donation, in the manner of his predecessors, he was declared emperor by the army, the senate, and the people.

298 Nero succeeds to the empire.

Nero's first care was, to show all possible respect to the deceased emperor, in order to cover the guilt of his death. His obsequies were performed with a pomp equal to that of Augustus: the young emperor pronounced his funeral oration, and he was canonized among the gods. The funeral oration, though spoken by Nero, was drawn up by Seneca; and it was remarked, that this was the first time a Roman emperor needed the assistance of another's eloquence.

Nero, though but 17 years of age, began his reign with the general approbation of mankind. As he owed the empire to Agrippina, so in the beginning he submitted to her directions with the most implicit obedience. On her part, she seemed resolved on governing with her natural ferocity, and considered her private animosities as the only rule to guide her in public justice. Immediately after the death of Claudius, she caused Silanus, the pro-consul of Asia, to be assassinated upon very slight suspicions, and without ever acquainting the emperor with her design. The next object of her resentment was Narcissus, the late emperor's favourite; a man equally notorious for the greatness of his wealth and the number of his crimes. He was obliged to put an end to his life by Agrippina's order, though Nero refused his consent.

299 His excellent administration for five years.

This bloody onset would have been followed by many severities of the same nature, had not Seneca and Burrhus, the emperor's tutor and general, opposed. These worthy men, although they owed their rise to the empress, were above being the instruments of her cruelty. They, therefore, combined together in an opposition; and gaining the young emperor on their side, formed a plan of power, at once the most merciful and wise. The beginning of this monarch's reign, while he continued to act by their counsels, has always been considered as a model for succeeding princes to govern by. The famous emperor Trajan used to say, "That for the first five years of this prince all other governments came short of his." In fact, the young monarch knew so well how to conceal his innate depravity, that his nearest friends could scarce perceive his virtues to be but assumed. He appeared just, liberal, and humane. When a warrant for the execution of a criminal was brought to him to be signed, he was heard to cry out, with seeming concern, "Would to Heaven that I had never learned to write!" The senate, upon a certain occasion, giving him their applause for the regularity and justice of his administration; he replied with singular modesty, "That they should defer their thanks till he had deserved them." His condescension and affability were not less than his other virtues; so that the Romans began to think, that the clemency of this prince would compensate for the tyranny of his predecessors.

In the mean time, Agrippina, who was excluded from any share in government, attempted, by every possible method, to maintain her declining power. Perceiving that her son had fallen in love with a freedwoman, named *Acte*, and dreading the influence of a concubine, she tried every art to prevent his growing passion. However, in so corrupt a court, it was no difficult matter for the emperor to find other confidents ready to assist him in his wishes. The gratification of his passion, therefore, in this instance, only served to increase his hatred for the empress. Nor was [illegible] it long before he gave evident marks of his disobedience, by displacing Pallas her chief favourite. It was upon this occasion that she first perceived the total declension of her authority; which threw her into the most ungovernable fury. In order to give terror to her rage, she proclaimed that Britannicus, the real heir to the throne, was still living, and in a condition to receive his father's empire, which was now possessed by an usurper. She threatened to go to the camp, and there

300 [illegible]

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there expose his baseness and her own, invoking all the furies to her assistance. These menaces served to alarm the suspicions of Nero; who, though apparently guided by his governors, yet had begun to give way to his natural depravity. He, therefore, determined upon the death of Britannicus, and contrived to have him poisoned at a public banquet. Agrippina, however, still retained her natural ferocity: she took every opportunity of obliging and flattering the tribunes and centurions; she heaped up treasures with a rapacity beyond her natural avarice; all her actions seemed calculated to raise a faction, and make herself formidable to the emperor. Whereupon Nero commanded her German guard to be taken from her, and obliged her to lodge out of the palace. He also forbid particular persons to visit her, and went himself but rarely and ceremoniously to pay her his respects. She now, therefore, began to find, that, with the emperor's favour, she had lost the assiduity of her friends. She was even accused by Silana of conspiring against her son, and of designing to marry Plautius, a person descended from Augustus, and of making him emperor. A short time after, Pallas, her favourite, together with Burrhus, were arraigned for a similar offence, and intending to set up Cornelius Sylla. These informations being proved void of any foundation, the informers were banished; a punishment which was considered as very inadequate to the greatness of the offence.

301 Poisons his brother.

302 Shameful behaviour of the emperor.

As Nero increased in years, his crimes seemed to increase in equal proportion. He now began to find a pleasure in running about the city by night, disguised like a slave. In this vile habit he entered taverns and brothels, attended by the lewd ministers of his pleasures, attempting the lives of such as opposed him, and frequently endangering his own. In imitation of the emperor's example, numbers of profligate young men infested the streets likewise; so that every night the city was filled with tumult and disorder. However, the people bore all these levities, which they ascribed to the emperor's youth, with patience, having occasion every day to experience his liberality, and having also been gratified by the abolition of many of their taxes. The provinces also were no way affected by these riots; for except disturbances on the side of the Parthians, which were soon suppressed, they enjoyed the most perfect tranquillity.

But those sensualities, which, for the first four years of his reign, produced but few disorders, in the fifth became alarming. He first began to transgress the bounds of decency, by publicly abandoning Octavia, his present wife, and then by taking Poppea, the wife of his favourite Otho, a woman more celebrated for her beauty than her virtues. This was another grating circumstance to Agrippina, who vainly used all her interest to disgrace Poppea, and reinstate herself in her son's lost favour. Historians assert, that she even offered to satisfy his passion herself, by an incestuous compliance; and that, had not Seneca interposed, the son would have joined in the mother's crime. This, however, does not seem probable, since we find Poppea victorious, soon after, in the contention of interests; and at last impelling Nero to parricide, to satisfy her revenge. She began her arts by urging him to divorce his present wife, and marry herself: she reproached him as a pupil, who wanted not only power over others, but liberty to direct himself. She insinuated the dangerous designs of Agrippina; and, by degrees, accustomed his mind to reflect on parricide without horror. His cruelties against his mother began rather by various circumstances of petty malice than by any downright injury. He encouraged several persons to tease her with litigious suits; and employed some of the meanest of the people to sing satirical songs against her, under her windows: but, at last, finding these ineffectual in breaking her spirit, he resolved on putting her to death. His first attempt was by poison; but this, though twice repeated, proved ineffectual, as she had fortified her constitution against it by antidotes. This failing, a ship was contrived in so artificial a manner as to fall to pieces in the water; on board of which she was invited to sail to the coasts of Calabria. However, this plot was as ineffectual as the former: the mariners, not being apprised of the secret, disturbed each other's operations; so that the ship not sinking as readily as was expected, Agrippina found means to continue swimming, till she was taken up by some trading vessels passing that way. Nero finding all his machinations were discovered, resolved to throw off the mask, and put her openly to death, without further delay. He therefore caused a report to be spread, that she had conspired against him, and that a poniard was dropped at his feet by one who pretended a command from Agrippina to assassinate him. In consequence of this, he applied to his governors Seneca and Burrhus, for their advice how to act, and their assistance in ridding him of his fears. Things were now come to such a crisis, that no middle way could be taken; and either Nero or Agrippina was to fall. Seneca, therefore, kept a profound silence; while Burrhus, with more resolution, refused to be perpetrator of so great a crime; alleging, that the army was entirely devoted to all the descendants of Cæsar, and would never be brought to imbrue their hands in the blood of any of his family. In this embarrassment, Anicetus, the contriver of the ship above-mentioned, offered his services; which Nero accepted with the greatest joy, crying out, "That then was the first moment he ever found himself an emperor." This freedman, therefore, taking with him a body of soldiers, surrounded the house of Agrippina, and then forced open the doors. The executioners having dispatched her with several wounds, left her dead on the couch, and went to inform Nero of what they had done. Some historians say, that Nero came immediately to view the body; that he continued to gaze upon it with pleasure, and ended his horrid survey, by coolly observing, that he never thought his mother had been so handsome.—However this be, he vindicated his conduct next day to the senate; who not only excused, but applauded his impiety.

303 Causes his mother to be murdered.

All the bounds of virtue being thus broken down, Nero now gave a loose to his appetites, that were not only sordid but inhuman. There seemed an odd contrast in his disposition; for while he practised cruelties which were sufficient to make the mind shudder with horror, he was fond of those amusing arts that soften and refine the heart. He was particularly addicted, even from childhood, to music, and not totally ignorant of poetry. But chariot-driving was his favourite pursuit. He never missed the circus, when chariot-races were to be exhibited there; appearing at first privately, and

304 Folly and meanness of Nero.

ſoon after publicly; till at laſt, his paſſion increaſing by indulgence, he was not content with being merely a ſpectator, but reſolved to become one of the principal performers. His governors, however, did all in their power to reſtrain this perverted ambition; but finding him reſolute, they incloſed a ſpace of ground in the valley of the Vatican, where he firſt exhibited only to ſome choſen ſpectators, but ſhortly after invited the whole town. The praiſes of his flattering ſubjects only ſtimulated him ſtill more to theſe unbecoming purſuits; ſo that he now reſolved to aſſume a new character, and to appear as a ſinger upon the ſtage.

His paſſion for muſic, as was obſerved, was no leſs natural to him than the former; but as it was leſs manly, ſo he endeavoured to defend it by the example of ſome of the moſt celebrated men, who practiſed it with the ſame fondneſs. He had been inſtructed in the the principles of this art from his childhood; and upon his advancement to the empire, he had put himſelf under the moſt celebrated maſters. He patiently ſubmitted to their inſtructions, and uſed all thoſe methods which ſingers practiſe, either to mend the voice, or improve its volubility. Yet, notwithſtanding all his aſſiduity, his voice was but a wretched one, being both feeble and unpleaſant. However, he was reſolved to produce it to the public, ſuch as it was; for flattery, he knew, would ſupply every deficiency. His firſt public appearance was at games of his own inſtitution, called *juveniles*; where he advanced upon the ſtage, tuning his inſtrument to his voice with great appearance of ſkill. A group of tribunes and centurions attended behind him; when his old governor Burrhus ſtood by his hopeful pupil, with indignation in his countenance, and praiſes on his lips.

He was deſirous alſo of becoming a poet: but he was unwilling to undergo the pain of ſtudy, which a proficiency in that art requires; he was deſirous of being a poet ready made. For this purpoſe, he got together ſeveral perſons, who were conſidered as great wits at court, though but very little known as ſuch to the public. Theſe attended him with verſes which they had compoſed at home, or which they blabbed out extemporaneouſly; and the whole of their compoſitions being tacked together, by his direction, was called a *poem*. Nor was he without his philoſophers alſo; he took a pleaſure in hearing their debates after ſupper, but he heard them merely for his amuſement.

Furniſhed with ſuch talents as theſe for giving pleaſure, he was reſolved to make the tour of his empire, and give the moſt public diſplay of his abilities wherever he came. The place of his firſt exhibition, upon leaving Rome, was Naples. The crowds there were ſo great, and the curioſity of the people ſo earneſt in hearing him, that they did not perceive an earthquake that happened while he was ſinging. His deſire of gaining the ſuperiority over the other actors was truly ridiculous: he made intereſt with his judges, reviled his competitors, formed private factions to ſupport him, all in imitation of thoſe who got their livelihood upon the ſtage. While he continued to perform, no man was permitted to depart from the theatre, upon any pretence whatſoever. Some were ſo fatigued with hearing him, that they leaped privately from the walls, or pretended to fall into fainting fits, in order to be carried out. Nay, it is ſaid, that ſeveral women were delivered in the theatre. Soldiers were placed in ſeveral parts to obſerve the looks and geſtures of the ſpectators, either to direct them where to point their applauſe, or reſtrain their diſpleaſure. An old ſenator, named *Veſpaſian*, afterwards emperor, happening to fall aſleep upon one of theſe occaſions, very narrowly eſcaped with his life.

After being fatigued with the praiſes of his countrymen, Nero reſolved upon going over into Greece, to receive new theatrical honours. The occaſion was this. The cities of Greece had made a law to ſend him the crowns from all the games; and deputies were accordingly diſpatched with this (to him) important embaſſy. As he one day entertained them at his table in the moſt ſumptuous manner, and converſed with them with the utmoſt familiarity, they intreated to hear him ſing. Upon his complying, the artful Greeks teſtified all the marks of eceſtaſy and rapture. Applauſes ſo warm were peculiarly pleaſing to Nero: he could not refrain from crying out, That the Greeks alone were worthy to hear him; and accordingly prepared without delay to go into Greece, where he ſpent the whole year enſuing. In this journey, his retinue reſembled an army in number; but it was only compoſed of ſingers, dancers, taylors, and other attendants upon the theatre. He paſſed over all Greece, and exhibited at all their games, which he ordered to be celebrated in one year. At the Olympic games he reſolved to ſhow the people ſomething extraordinary; wherefore, he drove a chariot with 10 horſes; but being unable to ſuſtain the violence of the motion, he was driven from his ſeat. The ſpectators, however, gave their unanimous applauſe, and he was crowned as conqueror. In this manner he obtained the prize at the Iſthmian, Pythian, and Nemean games. The Greeks were not ſparing of their crowns; he obtained 1800 of them. An unfortunate ſinger happened to oppoſe him on one of theſe occaſions, and exerted all the powers of his art, which, it appears, were prodigious. But he ſeems to have been a better ſinger than a politician; for Nero ordered him to be killed on the ſpot. Upon his return from Greece, he entered Naples, through a breach in the walls of the city, as was cuſtomary with thoſe who were conquerors in the Olympic games. But all the ſplendor of his return was reſerved for his entry into Rome. There he appeared ſeated in the chariot of Auguſtus, dreſſed in robes of purple, and crowned with wild olive, which was the Olympic garland. He bore in his hand the Pythian crown, and had 1100 more carried before him.—Beſide him ſat one Diodorus, a muſician; and behind him followed a band of ſingers, as numerous as a legion, who ſung in honour of his victories. The ſenate, the knights, and the people, attended this puerile pageant, filling the air with their acclamations. The whole city was illuminated, every ſtreet ſmoked with incenſe; wherever he paſſed, victims were ſlain; the pavement was ſtrewed with ſaffron, while garlands of flowers, ribbons, fowls, and paſties, (for ſo we are told), were ſhowered down upon him from the windows as he paſſed along. So many honours only inflamed his deſires of acquiring new; he at laſt began to take leſſons in wreſtling; willing to imitate Hercules in ſtrength, as he had rivalled Apollo in activity. He alſo cauſed a

lion

Rome. lion of pasteboard to be made with great art, against which he undauntedly appeared in the theatre, and struck it down with a blow of his club.

But his cruelties even outdid all his other extravagancies, a complete list of which would exceed the limits of the present article. He was often heard to observe, that he had rather be hated than loved. When one happened to say in his presence, That the world might be burned when he was dead: "Nay," replied

305 Burning of Rome. Nero, "let it be burnt while I am alive." In fact, a great part of the city of Rome was consumed by fire shortly after. This remarkable conflagration took place in the 11th year of Nero's reign. The fire began among certain shops, in which were kept such goods as were proper to feed it; and spread every way with such amazing rapidity, that its havock was felt in distant streets, before any measures to stop it could be tried. Besides an infinite number of common houses, all the noble monuments of antiquity, all the stately palaces, temples, porticoes, with goods, riches, furniture, and merchandize, to an immense value, were devoured by the flames, which raged first in the low regions of the city, and then mounted to the higher with such terrible violence and impetuosity, as to frustrate all relief. The shrieks of the women, the various efforts of some endeavouring to save the young and tender, of others attempting to assist the aged and infirm, and the hurry of such as strove only to provide for themselves, occasioned a mutual interruption and universal confusion. Many, while they chiefly regarded the danger that pursued them from behind, found themselves suddenly involved in the flames before and on every side. If they escaped into the quarters adjoining, or into the parts quite remote, there too they met with the devouring flames. At last, not knowing whither to fly, nor where to seek sanctuary, they abandoned the city, and repaired to the open fields. Some, out of despair for the loss of their whole substance, others, through tenderness for their children and relations, whom they had not been able to snatch from the flames, suffered themselves to perish in them, though they might easily have found means to escape. No man dared to stop the progress of the fire, there being many who had no other business but to prevent with repeated menaces all attempts of that nature; nay, some were, in the face of the public, seen to throw lighted fire-brands into the houses, loudly declaring that they were authorised so to do; but whether this was only a device to plunder more freely, or in reality they had such orders, was never certainly known.

Nero, who was then at Antium, did not offer to return to the city, till he heard that the flames were advancing to his palace, which, after his arrival, was, in spite of all opposition, burnt down to the ground, with all the houses adjoining to it. However, Nero, affecting compassion for the multitude, thus vagabond and bereft of their dwellings, laid open the field of Mars, and all the great edifices erected there by Agrippa, and even his own gardens. He likewise caused tabernacles to be reared in haste for the reception of the forlorn populace; from Ostia, too, and the neighbouring cities, were brought, by his orders, all sorts of furniture and necessaries, and the price of corn was considerably lessened. But these bounties, however generous and popular, were bestowed in vain, because a report was spread abroad, that, during the time of this general conflagration, he mounted his domestic stage, and sung the destruction of Troy, comparing the present desolation to the celebrated calamities of antiquity. At length, on the sixth day, the fury of the flames was stopped at the foot of mount Esquiline, by levelling with the ground an infinite number of buildings; so that the fire found nothing to encounter but the open fields and empty air.

But scarce had the late alarm ceased, when the fire broke out anew with fresh rage, but in places more wide and spacious; whence fewer persons were destroyed, but more temples and public porticoes were overthrown. As this second conflagration broke out in certain buildings belonging to Tigellinus, they were both generally ascribed to Nero; and it was conjectured, that, by destroying the old city, he aimed at the glory of building a new one, and calling it by his name. Of the fourteen quarters into which Rome was divided, four remained entire, three were laid in ashes, and, in the seven others, there remained here and there a few houses, miserably shattered, and half consumed. Among the many ancient and stately edifices, which the rage of the flames utterly consumed, Tacitus reckons the temple dedicated by Servius Tullius to the Moon; the temple and great altar consecrated by Evander to Hercules; the chapel vowed by Romulus to Jupiter Stator; the court of Numa, with the temple of Vesta, and in it the tutelar gods peculiar to the Romans. In the same fate were involved the inestimable treasures acquired by so many victories, the wonderful works of the best painters and sculptors of Greece, and, what is still more to be lamented, the ancient writings of celebrated authors, till then preserved perfectly entire. It was observed, that the fire began the same day on which the Gauls, having formerly taken the city, burnt it to the ground.

306 Nero's golden palace. Upon the ruins of the demolished city, Nero founded a palace, which he called his *golden house*; though it was not so much admired on account of an immense profusion of gold, precious stones, and other inestimable ornaments, as for its vast extent, containing spacious fields, large wildernesses, artificial lakes, thick woods, orchards, vineyards, hills, groves, &c. The entrance of this stately edifice was wide enough to receive a colossus, representing Nero, 120 feet high: the galleries, which consisted of three rows of tall pillars, were each a full mile in length; the lakes were encompassed with magnificent buildings, in the manner of cities; and the woods stocked with all manner of wild beasts. The house itself was tiled with gold: the walls were covered with the same metal, and richly adorned with precious stones and mother-of-pearl, which in those days was valued above gold: the timber-work and ceilings of the rooms were inlaid with gold and ivory: the roof of one of the banqueting-rooms resembled the firmament both in its figure and motion, turning incessantly about night and day, and showering all sorts of sweet waters. When this magnificent structure was finished, Nero approved of it only so far as to say, that *at length he began to lodge like a man.* Pliny tells us, that this palace extended quite round the city. Nero, it seems, did not finish it; for the first order Otho signed was, as we read in Suetonius, for fifty millions of sesterces to be employed in perfecting the golden palace which Nero had begun.

The

The projectors of the plan were Severus and Celer, two bold and enterprising men, who soon after put the emperor upon a still more expensive and arduous undertaking, namely, that of cutting a canal through hard rocks and steep mountains, from the lake Avernus to the mouth of the Tiber, 160 miles in length, and of such breadth that two galleys of five ranks of oars might easily pass abreast. His view in this was to open a communication between Rome and Campania, free from the troubles and dangers of the sea; for, this very year, a great number of vessels laden with corn were shipwrecked at Misenum, the pilots choosing rather to venture out in a violent storm, than not to arrive at the time they were expected by Nero. For the executing of this great undertaking, the emperor ordered the prisoners from all parts to be transported into Italy; and such as were convicted, whatever their crimes were, to be condemned only to his works. Nero, who undertook nothing with more ardour and readiness than what was deemed impossible, expended incredible sums in this rash undertaking, and exerted all his might to cut through the mountains adjoining to the lake Avernus; but, not being able to remove by art the obstacles of nature, he was in the end obliged to drop the enterprise.

The ground that was not taken up by the foundations of Nero's own palace, he assigned for houses, which were not placed, as after the burning of the city by the Gauls, at random, and without order; but the streets were laid out regularly, spacious and straight; the edifices restrained to a certain height, perhaps of 70 feet, according to the plan of Augustus; the courts were widened; and to all the great houses which stood by themselves, and were called *isles*, large porticoes were added, which Nero engaged to raise at his own expence, and to deliver to each proprietor the squares about them clear from all rubbish. He likewise promised rewards according to every man's rank and substance; and fixed a day for the performance of his promise, on condition that against that day their several houses and palaces were finished. He moreover made the following wise regulations to obviate such a dreadful calamity for the future; to wit, That the new buildings should be raised to a certain height without timber; that they should be arched with stone from the quarries of Gabii and Alba, which were proof against fire; that over the common springs, which were diverted by private men for their own uses, overseeers should be placed to prevent that abuse; that every citizen should have ready in his house some machine proper to extinguish the fire; that no wall should be common to two houses, but every house be inclosed within its own peculiar walls, &c. Thus the city in a short time rose out of its ashes with new lustre, and more beautiful than ever. However, some believed, that the ancient form was more conducing to health, the rays of the sun being hardly felt on account of the narrowness of the streets, and the height of the buildings, whereas now there was no shelter against the scorching heat. We are told, that Nero designed to extend the walls to Ostia, and to bring from thence by a canal the sea into the city.

The emperor used every art to throw the odium of this conflagration upon the Christians, who were at that time gaining ground in Rome. Nothing could be more dreadful than the persecution raised against them upon this false accusation, of which an account is given under the article *Ecclesiastical History*. Hitherto, however, the citizens of Rome seemed comparatively exempted from his cruelties, which chiefly fell upon strangers and his nearest connections; but a conspiracy formed against him by Piso, a man of great power and integrity, which was prematurely discovered, opened a new train of suspicions that destroyed many of the principal families in Rome. This conspiracy, in which several of the chief men of the city were concerned, was first discovered by the indiscreet zeal of a woman named *Epicharis*, who, by some means now unknown, had been let into the plot, which she revealed to Volusius, a tribune, in order to prevail upon him to be an accomplice. Volusius, instead of coming into her design, went and discovered what he had learned to Nero, who immediately put Epicharis in prison. Soon after, a freedman belonging to Scænius, one of the accomplices, made a farther discovery. The conspirators were examined apart; and as their testimonies differed, they were put to the torture. Natalis was the first who made a confession of his own guilt and that of many others. Scænius gave a list of the conspirators still more ample. Lucan, the poet, was amongst the number; and he, like the rest, in order to save himself, still farther enlarged the catalogue, naming, among others, Attilia, his own mother. Epicharis was now, therefore, again called upon and put to the torture; but her fortitude was proof against all the tyrant's cruelty; neither scourging nor burning, nor all the malicious methods used by the executioners, could extort the smallest confession. She was therefore remanded to prison, with orders to have her tortures renewed the day following. In the meantime, she found an opportunity of strangling herself with her handkerchief, by hanging it against the back of her chair. On the discoveries already made, Piso, Lateranus, Fennius Rufus, Subrius Flavius, Sulpicius Asper, Vestinus the consul, and numberless others, were all executed without mercy. But the two most remarkable personages who fell on this occasion were Seneca the philosopher, and Lucan the poet, who was his nephew. It is not certainly known whether Seneca was really concerned in this conspiracy or not.—This great man had for some time perceived the outrageous conduct of his pupil; and, finding himself incapable of controuling his savage disposition, had retired from court into solitude and privacy. However, his retreat did not now protect him; for Nero, either having real testimony against him, or else hating him for his virtues, sent a tribune to inform him that he was suspected as an accomplice, and soon after sent him an order to put himself to death, with which he complied.

In this manner was the whole city filled with slaughter, and frightful instances of treachery. No master was secure from the vengeance of his slaves, nor even parents from the baser attempts of their children. Not only throughout Rome, but the whole country round, bodies of soldiers were seen in pursuit of the suspected and the guilty. Whole crowds of wretches loaded with chains were led every day to the gates of the palace, to wait their sentence from the tyrant's own lips. He always presided at the torture in person, attended by Tigellinus,

Rome.

3-9 The conspiracy of Piso.

Rome.

gellinus, captain of the guard, who, from being the moſt abandoned man in Rome, was now become his principal miniſter and favourite.

Nor were the Roman provinces in a better ſituation than the capital city. The example of the tyrant ſeemed to influence his governors, who gave inſtances not only of their rapacity, but of their cruelty, in every part of the empire. In the ſeventh year of his reign, the Britons revolted, under the conduct of their queen Boadicea* ; but were at laſt ſo completely defeated, that ever after, during the continuance of the Romans among them, they loſt not only all hopes, but even all deſire of freedom.

* See *England*.

310 Succeſs againſt the Parthians, &c.

A war alſo was carried on againſt the Parthians for the greateſt part of this reign, conducted by Corbulo ; who, after many ſucceſſes, had diſpoſſeſſed Tiridates, and ſettled Tigranes in Armenia in his room. Tiridates, however, was ſoon after reſtored by an invaſion of the Parthians into that country ; but being once more oppoſed by Corbulo, the Romans and Parthians came to an agreement, that Tiridates ſhould continue to govern Armenia, upon condition that he ſhould lay down his crown at the feet of the emperor's ſtatue, and receive it as coming from him ; all which he ſhortly after performed. A ceremony, however, which Nero deſired to have repeated to his perſon ; wherefore by letters and promiſes he invited Tiridates to Rome, granting him the moſt magnificent ſupplies for his journey. Nero attended his arrival with very ſumptuous preparations. He received him ſeated on a throne, accompanied by the ſenate ſtanding round him, and the whole army drawn out with all imaginable ſplendor.—Tiridates aſcended the throne with great reverence ; and approaching the emperor fell down at his feet, and in the moſt abject terms acknowledged himſelf his ſlave. Nero raiſed him up, telling him with equal arrogance, that he did well, and that by his ſubmiſſion he had gained a kingdom which his anceſtors could never acquire by their arms. He then placed the crown on his head, and, after the moſt coſtly ceremonies and entertainments, he was ſent back to Armenia, with incredible ſums of money to defray the expences of his return.

311 Revolt of the Jews.

In the 12th year of this emperor's reign, the Jews alſo revolted, having been ſeverely oppreſſed by the Roman governor. It is ſaid that Florus, in particular, was arrived at that degree of tyranny, that by public proclamation he gave permiſſion to plunder the country, provided he received half the ſpoil. Theſe oppreſſions drew ſuch a train of calamities after them, that the ſufferings of all other nations were ſlight in compariſon to what this devoted people afterwards endured, as is related under the article Jews. In the mean time, Nero proceeded in his cruelties at Rome with unabated ſeverity.

The valiant Corbulo, who had gained ſo many victories over the Parthians, could not eſcape his fury. Nor did the empreſs Poppæa herſelf eſcape ; whom, in a fit of anger, he kicked when ſhe was pregnant, by which ſhe miſcarried and died. At laſt the Romans began to grow weary of ſuch a monſter, and there appeared a general revolution in all the provinces.

312 Revolt of Vindex in Gaul,

The firſt appeared in Gaul, under Julius Vindex, who commanded the legions there, and publicly proteſted againſt the tyrannical government of Nero. He appeared to have no other motive for this revolt than that of freeing the world from an oppreſſor ; for when it was told him that Nero had ſet a reward upon his head of 10,000,000 of ſeſterces, he made this gallant anſwer, "Whoever brings me Nero's head, ſhall, if he pleaſes, have mine." But ſtill more to ſhow that he was not actuated by motives of private ambition, he proclaimed Sergius Galba emperor, and invited him to join in the revolt. Galba, who was at that time governor of Spain, was equally remarkable for his wiſdom in peace and his courage in war. But as all talents under corrupt princes are dangerous, he for ſome years had ſeemed willing to court obſcurity, giving himſelf up to an inactive life, and avoiding all opportunities of ſignalizing his valour. He now therefore, either through the caution attending old age, or from a total want of ambition, appeared little inclined to join with Vindex, and continued for ſome time to deliberate with his friends on the part he ſhould take.

In the mean time, Nero, who had been appriſed of the proceedings againſt him in Gaul, appeared totally regardleſs of the danger, privately flattering himſelf that the ſuppreſſion of this revolt would give him an opportunity of freſh confiſcations. But the actual revolt of Galba, the news of which arrived ſoon after, affected him in a very different manner. The reputation of that general was ſuch, that from the moment he declared againſt him, Nero conſidered himſelf as undone. He received the account as he was at ſupper ; and inſtantly, ſtruck with terror, overturned the table with his foot, breaking two cryſtal vaſes of immenſe value. He then fell into a ſwoon ; from which when he recovered he tore his clothes, and ſtruck his head, crying out, "that he was utterly undone." He then began to meditate ſlaughters more extenſive than he yet had committed. He reſolved to maſſacre all the governors of provinces, to deſtroy all exiles, and to murder all the Gauls in Rome, as a puniſhment for the treachery of their countrymen. In ſhort, in the wildneſs of his rage, he thought of poiſoning the whole ſenate, of burning the city, and turning the lions kept for the purpoſes of the theatre out upon the people. Theſe deſigns being impracticable, he reſolved at laſt to face the danger in perſon. But his very preparations ſerved to mark the infatuation of his mind. His principal care was, to provide waggons for the convenient carriage of his muſical inſtruments ; and to dreſs out his concubines like Amazons, with whom he intended to face the enemy. He alſo made a reſolution, that if he came off with ſafety and empire, he would appear again upon the theatre with the lute, and would equip himſelf as a pantomime.

313 And Galba.

While Nero was thus frivolouſly employed, the revolt became general. Not only the armies in Spain and Gaul, but alſo the legions in Germany, Africa, and Luſitania, declared againſt him. Virginius Rufus alone, who commanded an army on the Upper Rhine, for a while continued in ſuſpenſe ; during which his forces, without his permiſſion, falling upon the Gauls, routed them with great ſlaughter, and Vindex ſlew himſelf. But this ill ſucceſs no way advanced the intereſts of Nero ; he was ſo deteſted by the whole empire, that he could find none of the armies faithful to him, however they might diſagree with each other. He therefore called for Locuſta to furniſh him with poiſon ; and, thus prepared for the worſt, he retired to the Servilian gardens,

314 Miſera ſituatio Nero.

me. dens, with a resolution of flying into Egypt. He accordingly dispatched the freedmen, in which he had the most confidence, to prepare a fleet at Ostia; and in the meanwhile sounded, in person, the tribunes and centurions of the guard, to know if they were willing to share his fortunes. But they all excused themselves, under divers pretexts. One of them had the boldness to answer him by part of a line from Virgil: *Usque adeone miserum est mori?* "Is death then such a misfortune?" Thus destitute of every resource, all the expedients that cowardice, revenge, or terror could produce, took place in his mind by turns. He at one time resolved to take refuge among the Parthians; at another, to deliver himself up to the mercy of the insurgents: one while, he determined to mount the rostrum, to ask pardon for what was past, and to conclude with promises of amendment for the future. With these gloomy deliberations he went to bed; but waking about midnight, he was surprised to find his guards had left him. The prætorian soldiers, in fact, having been corrupted by their commander, had retired to their camp, and proclaimed Galba emperor. Nero immediately sent for his friends to deliberate upon his present exigence; but his friends also forsook him. He went in person from house to house; but all the doors were shut against him, and none were found to answer his inquiries. While he was pursuing this inquiry, his very domestics followed the general defection; and having plundered his apartment, escaped different ways. Being now reduced to desperation, he desired that one of his favourite gladiators might come and dispatch him: but even in this request there was none found to obey. "Alas! (cried he) have I neither friend nor enemy?" And then running desperately forth, he seemed resolved to plunge headlong into the Tiber. But just then his courage beginning to fail him, he made a sudden stop, as if willing to recollect his reason; and asked for some secret place, where he might re-assume his courage, and meet death with becoming fortitude. In this distress, Phaon, one of his freedmen, offered him his country-house, at about four miles distant, where he might for some time remain concealed. Nero accepted his offer; and, half-dressed as he was, with his head covered, and hiding his face with an handkerchief, he mounted on horseback, attended by four of his domestics, of whom the wretched Sporus was one. His journey, though quite short, was crowded with adventures. Round him he heard nothing but confused noises from the camp, and the cries of the soldiers, imprecating a thousand evils upon his head. A passenger, meeting him on the way, cried, "There go men in pursuit of Nero." Another asked him, if there was any news of Nero in the city? His horse taking fright at a dead body that lay near the road, he dropped his handkerchief; and a soldier that was near, addressed him by name. He now therefore quitted his horse, and forsaking the highway, entered a thicket that led towards the back part of Phaon's house, through which he crept, making the best of his way among the reeds and brambles, with which the place was overgrown. When he was arrived at the back part of the house, while he was waiting till there should be a breach made in the wall, he took up some water in the hollow of his hands from a pool to drink; saying, "To this liquor is Nero reduced." When the hole was made large enough to admit him, he crept in upon all-fours, and took a short repose upon a wretched pallet, that had been prepared for his reception. Being pressed by hunger, he demanded somewhat to eat: they brought him a piece of brown bread, which he refused; but he drank a little water. During this interval, the senate finding the prætorian guards had taken part with Galba, declared him emperor, and condemned Nero to die *more majorum*: that is, "according to the rigour of the ancient laws." These dreadful tidings were quickly brought by one of Phaon's slaves from the city, while Nero yet continued lingering between his hopes and his fears. When he was told of the resolution of the senate against him, he asked the messenger what he meant by being punished "according to the rigour of the ancient laws?" To this he was answered, that the criminal was to be stripped naked, his head was to be fixed in a pillory, and in that posture he was to be scourged to death. Nero was so terrified at this, that he seized two poniards which he had brought with him, and examining their points, returned them to their sheaths, saying, that the fatal moment was not yet arrived. However, he had little time to spare; for the soldiers who had been sent in pursuit of him were just then approaching the house: wherefore hearing the sound of the horse's feet, he set a dagger to his throat, with which, by the assistance of Epaphroditus, his freedman and secretary, he gave himself a mortal wound. He was not quite dead when one of the centurions entering the room, and pretending he came to his relief, attempted to stop the blood with his cloak. But Nero, regarding him with a stern countenance, said, "It is now too late. Is this your fidelity?"—Upon which, with his eyes fixed, and frightfully staring, he expired, in the 32d year of his age, and the 14th of his reign.

315 His death.

316 Uneasiness of Galba in the beginning of his reign.

Galba was 72 years old when he was declared emperor, and was then in Spain with his legions. However, he soon found that his being raised to the throne was but an inlet to new disquietudes. His first embarrassment arose from a disorder in his own army; for upon his approaching the camp, one of the wings of horse repenting of their choice, prepared to revolt, and he found it no easy matter to reconcile them to their duty. He also narrowly escaped assassination from some slaves, who were presented to him by one of Nero's freedmen with that intent. The death of Vindex also served to add not a little to his disquietudes; so that, upon his very entrance into the empire, he had some thoughts of putting an end to his own life. But hearing from Rome that Nero was dead, and the empire transferred to him, he immediately assumed the title and ensigns of command. In his journey towards Rome he was met by Rufus Virginius, who, finding the senate had decreed him the government, came to yield him obedience. This general had more than once refused the empire himself, which was offered him by his soldiers; alleging, that the senate alone had the disposal of it, and from them only he would accept the honour.

317 Faults in his administration.

Galba having been brought to the empire by means of his army, was at the same time willing to suppress their power to commit any future disturbance. His first approach to Rome was attended with one of those rigorous strokes of justice which ought rather to be denominated *cruelty* than any thing else. A body of mariners,

Rome.

riners, whom Nero had taken from the oar and enlisted among the legions, went to meet Galba, three miles from the city, and with loud importunities demanded a confirmation of what his predecessor had done in their favour. Galba, who was rigidly attached to the ancient discipline, deferred their request to another time. But they, considering this delay as equivalent to an absolute denial, insisted in a very disrespectful manner; and some of them even had recourse to arms: whereupon Galba ordered a body of horse attending him to ride in among them, and thus killed 7000 of them; but not content with this punishment, he afterwards ordered them to be decimated. Their insolence demanded correction; but such extensive punishments deviated into cruelty. His next step to curb the insolence of the soldiers, was his discharging the German cohort, which had been established by the former emperors as a guard to their persons. Those he sent home to their own country unrewarded, pretending they were disaffected to his person. He seemed to have two other objects also in view; namely, to punish those vices which had come to an enormous height in the last reign, with the strictest severity; and to replenish the exchequer, which had been quite drained by the prodigality of his predecessors. But these attempts only brought on him the imputation of severity and avarice; for the state was too much corrupted to admit of such an immediate transition from vice to virtue. The people had long been maintained in sloth and luxury by the prodigality of the former emperors, and could not think of being obliged to seek for new means of subsistence, and to retrench their superfluities. They began, therefore, to satirize the old man, and turn the simplicity of his manners into ridicule. Among the marks of avarice recorded of him, he is said to have groaned upon having an expensive soup served up to his table; he is said to have presented to his steward, for his fidelity, a plate of beans; a famous player upon the flute, named *Canus*, having greatly delighted him, it is reported, that he drew out his purse, and gave him five-pence, telling him, that it was private and not public money. By such ill-judged frugalities, at such a time, Galba began to lose his popularity; and he, who before his accession was esteemed by all, being become emperor, was considered with ridicule and contempt. But there are some circumstances alleged against him, less equivocal than those trifling ones already mentioned. Shortly after his coming to Rome, the people were presented with a most grateful spectacle, which was that of Locusta, Elius, Policletus, Petronius, and Petinus, all the bloody ministers of Nero's cruelty, drawn in fetters through the city, and publicly executed. But Tigellinus, who had been more active than all the rest, was not there. The crafty villain had taken care for his own safety, by the largeness of his bribes; and though the people cried out for vengeance against him at the theatre and at the circus, yet the emperor granted him his life and pardon. Helotus the eunuch, also, who had been the instrument of poisoning Claudius, escaped, and owed his safety to the proper application of his wealth. Thus, by the inequality of his conduct, he became despicable to his subjects. At one time shewing himself severe and frugal, at another remiss and prodigal; condemning some illustrious persons without any hearing, and pardoning others though guilty: in short, nothing was done but by the mediation of his favourites; all offices were venal, and all punishments redeemable by money.

Affairs were in this unsettled posture at Rome, when the provinces were yet in a worse condition. The success of the army in Spain in choosing an emperor induced the legions in the other parts to wish for a similar opportunity. Accordingly, many seditions were kindled, and several factions promoted in different parts of the empire, but particularly in Germany. There were then in that province two Roman armies; the one which had lately attempted to make Rufus Virginius emperor, as has been already mentioned, and which was commanded by his lieutenant; the other commanded by Vitellius, who long had an ambition to obtain the empire for himself. The former of these armies despising their present general, and considering themselves as suspected by the emperor for having been the last to acknowledge his title, resolved now to be foremost in denying it. Accordingly, when they were summoned to take the oaths of homage and fidelity, they refused to acknowledge any other commands but those of the senate. This refusal they backed by a message of the prætorian bands, importing, that they were resolved not to acquiesce in the election of an emperor created in Spain, and desiring that the senate should proceed to a new choice.

Galba being informed of this commotion, was sensible, that, besides his age, he was less respected for want of an heir. He resolved therefore to put what he had formerly designed in execution, and to adopt some person whose virtues might deserve such advancement, and protect his declining age from danger. His favourites understanding his determination, instantly resolved to give him an heir of their own choosing; so that there arose a great contention among them upon this occasion. Otho made warm application for himself; alleging the great services he had done the emperor, as being the first man of note who came to his assistance when he had declared against Nero. However, Galba, being fully resolved to consult the public good alone, rejected his suit; and on a day appointed ordered Piso Lucinianus to attend him. The character given by historians of Piso is, that he was every way worthy of the honour designed him. He was noway related to Galba; and had no other interest but merit to recommend him to his favour. Taking this youth therefore by the hand, in the presence of his friends, he adopted him to succeed in the empire, giving him the most wholesome lessons for guiding his future conduct. Piso's conduct showed that he was highly deserving this distinction: in all his deportment there appeared such modesty, firmness, and equality of mind, as bespoke him rather capable of discharging, than ambitious of obtaining, his present dignity. But the army and the senate did not seem equally disinterested upon this occasion; they had been so long used to bribery and corruption, that they could now bear no emperor who was not in a capacity of satisfying their avarice. The adoption therefore of Piso was but coldly received; for his virtues were no recommendation in a nation of universal depravity.

31 Otho declared emperor.

Otho now finding his hopes of adoption wholly frustrated, and still further stimulated by the immense load of debt which he had contracted by his riotous way of living, resolved upon obtaining the empire by force; since

me. since he could not by peaceable succession. In fact, his circumstances were so very desperate, that he was heard to say, that it was equal to him whether he fell by his enemies in the field or by his creditors in the city. He therefore raised a moderate sum of money, by selling his interest to a person who wanted a place; and with this bribed two subaltern officers in the prætorian bands, supplying the deficiency of largesses by promises and plausible pretences. Having in this manner, in less than eight days, corrupted the fidelity of the soldiers, he stole secretly from the emperor while he was sacrificing; and assembling the soldiers, in a short speech urged the cruelties and avarice of Galba. Finding these his invectives received with universal shouts by the whole army, he entirely threw off the mask, and avowed his intentions of dethroning him. The soldiers being ripe for sedition, immediately seconded his views: taking Otho upon their shoulders, they instantly proclaimed him emperor; and, to strike the citizens with terror, carried him with their swords drawn into the camp.

19 a mur- L. Galba, in the mean time, being informed of the revolt of the army, seemed utterly confounded, and in want of sufficient resolution to face an event which he should have long foreseen. In this manner the poor old man continued wavering and doubtful; till at last, being deluded by a false report of Otho's being slain, he rode into the forum in complete armour, attended by many of his followers. Just at the same instant a body of horse sent from the camp to destroy him entered on the opposite side, and each party prepared for the encounter. For some time hostilities were suspended on each side; Galba, confused and irresolute, and his antagonists struck with horror at the baseness of their enterprise. At length, however, finding the emperor in some measure deserted by his adherents, they rushed in upon him, trampling under foot the crowds of people that then filled the forum. Galba seeing them approach, seemed to recollect all his former fortitude; and bending his head forward, bid the assassins strike it off if it were for the good of the people. This was quickly performed; and his head being set upon the point of a lance, was presented to Otho, who ordered it to be contemptuously carried round the camp; his body remaining exposed in the streets till it was buried by one of his slaves. He died in the 73d year of his age, after a short reign of seven months.

No sooner was Galba thus murdered, than the senate and people ran in crowds to the camp, contending who should be foremost in extolling the virtues of the new emperor, and depressing the character of him they had so unjustly destroyed. Each laboured to excel the rest in his instances of homage; and the less his affections were for him, the more did he indulge all the vehemence of exaggerated praise. Otho finding himself surrounded by congratulating multitudes, immediately repaired to the senate, where he received the titles usually given to the emperors; and from thence returned to the palace, seemingly resolved to reform his life, and assume manners becoming the greatness of his station.

He began his reign by a signal instance of clemency, in pardoning Marius Celsus, who had been highly favoured by Galba; and not contented with barely forgiving, he advanced him to the highest honours; asserting, that "fidelity deserved every reward." This act of clemency was followed by another of justice, equally agreeable to the people. Tigellinus, Nero's favourite, he who had been the promoter of all his cruelties, was now put to death; and all such as had been unjustly banished, or stripped, at his instigation, during Nero's reign, were restored to their country and fortunes. Rome.

320 Vitellius revolts. In the mean time, the legions in Lower Germany having been purchased by the large gifts and specious promises of Vitellius their general, were at length induced to proclaim him emperor; and regardless of the senate, declared that they had an equal right to appoint to that high station with the cohorts at Rome. The news of this conduct in the army soon spread consternation throughout Rome; but Otho was particularly struck with the account, as being apprehensive that nothing but the blood of his countrymen could decide a contest of which his own ambition only was the cause. He now therefore sought to come to an agreement with Vitellius; but this not succeeding, both sides began their preparations for war. News being received that Vitellius was upon his march to Italy, Otho departed from Rome with a vast army to oppose him. But though he was very powerful with regard to numbers, his men, being little used to war, could not be relied on. He seemed by his behaviour sensible of the disproportion of his forces; and he is said to have been tortured with frightful dreams and the most uneasy apprehensions. It is also reported by some, that one night fetching many profound sighs in his sleep, his servants ran hastily to his bed-side, and found him stretched on the ground. He alleged he had seen the ghost of Galba, which had, in a threatening manner, beat and pushed him from the bed; and he afterwards used many expiations to appease it. However this be, he proceeded with a great show of courage till he arrived at the city of Brixellum, on the river Po, where he remained, sending his forces before him under the conduct of his generals Suetonius and Celsus, who made what haste they could to give the enemy battle. The army of Vitellius, which consisted of 70,000 men, was commanded by his generals Valens and Cecina, he himself remaining in Gaul in order to bring up the rest of his forces. Thus both sides hastened to meet each other with so much animosity and precipitation, that three considerable battles were fought in the space of three days. One near Placentia, another near Cremona, and a third at a place called *Castor;* in all which Otho had the advantage. But these successes were but of short-lived continuance; for Valens and Cecina, who had hitherto acted separately, joining their forces, and reinforcing their armies with fresh supplies, resolved to come to a general engagement. Otho, who by this time had joined his army at a little village called *Bedriacum*, finding the enemy, notwithstanding their late losses, inclined to come to a battle, resolved to call a council of war to determine upon the proper measures to be taken. His generals were of opinion to protract the war: but others, whose inexperience had given them confidence, declared, that nothing but a battle could relieve the miseries of the state; protesting, that Fortune, and all the gods, with the divinity of the emperor himself, favoured the design, and would undoubtedly prosper the enterprise. 321 Otho defeated at Bedriacum.

Rome.

In this advice Otho acquiesced: he had been for some time so uneasy under the war, that he seemed willing to exchange suspense for danger. However, he was so surrounded with flatterers, that he was prohibited from being personally present in the engagement, but prevailed upon to reserve himself for the fortune of the empire, and wait the event at Brixellum. The affairs of both armies being thus adjusted, they came to an engagement at Bedriacum; where, in the beginning, those on the side of Otho seemed to have the advantage. At length, the superior discipline of the legions of Vitellius turned the scale of victory. Otho's army fled in great confusion towards Bedriacum, being pursued with a miserable slaughter all the way.

322 Despairs, and kills himself.

In the mean time, Otho waited for the news of the battle with great impatience, and seemed to tax his messengers with delay. The first account of his defeat was brought him by a common soldier, who had escaped from the field of battle. However, Otho, who was still surrounded by flatterers, was defined to give no credit to a base fugitive, who was guilty of falsehood only to cover his own cowardice. The soldier, however, still persisted in the veracity of his report; and, finding none inclined to believe him, immediately fell upon his sword, and expired at the emperor's feet. Otho was so much struck with the death of this man, that he cried out, that he would cause the ruin of no more such valiant and worthy soldiers, but would end the contest the shortest way; and therefore having exhorted his followers to submit to Vitellius, he put an end to his own life.

It was no sooner known that Otho had killed himself, than all the soldiers repaired to Virginius, the commander of the German legions, earnestly intreating him to take upon him the reins of government; or at least, intreating his mediation with the generals of Vitellius in their favour. Upon his declining their request, Rubrius Gallus, a person of considerable note, undertook their embassy to the generals of the conquering army; and soon after obtained a pardon for all the adherents of Otho.

325 Vitellius declared emperor.

Vitellius was immediately after declared emperor by the senate; and received the marks of distinction which were now accustomed to follow the appointment of the strongest side. At the same time, Italy was severely distressed by the soldiers, who committed such outrages as exceeded all the oppressions of the most calamitous war. Vitellius, who was yet in Gaul, resolved, before he set out for Rome, to punish the prætorian cohorts, who had been the instruments of all the late disturbances in the state. He therefore caused them to be disarmed, and deprived of the name and honour of soldiers. He also ordered 150 of those who were most guilty to be put to death.

As he approached towards Rome, he passed through the towns with all imaginable splendor; his passage by water was in painted galleys, adorned with garlands of flowers, and profusely furnished with the greatest delicacies. In his journey there was neither order nor discipline among his soldiers; they plundered wherever they came with impunity; and he seemed no way displeased with the licentiousness of their behaviour.

Upon his arrival at Rome, he entered the city, not as a place he came to govern with justice, but as a town that became his own by the laws of conquest. He marched through the streets mounted on horseback, all in armour; the senate and people going before him, as if the captives of his late victory. He the next day made the senate a speech, in which he magnified his own actions, and promised them extraordinary advantages from his administration. He then harangued the people, who, being now long accustomed to flatter all in authority, highly applauded and blessed their new emperor.

326 His sha[illegible] [illegible]ny, a[illegible] other v[illegible]

In the mean time, his soldiers being permitted to satiate themselves in the debaucheries of the city, grew totally unfit for war. The principal affairs of the state were managed by the lowest wretches. Vitellius, more abandoned than they, gave himself up to all kinds of luxury and profuseness: but gluttony was his favourite vice, so that he brought himself to a habit of vomiting, in order to renew his meals at pleasure. His entertainments, though seldom at his own cost, were prodigiously expensive; he frequently invited himself to the tables of his subjects, breakfasting with one, dining with another, and supping with a third, all in the same day. The most memorable of these entertainments was that made for him by his brother on his arrival at Rome. In this were served up 2000 several dishes of fish, and 7000 of fowl, of the most valuable kinds. But in one particular dish he seemed to have outdone all the former profusion of the most luxurious Romans. This dish, which was of such magnitude as to be called the *shield of Minerva*, was filled with an olio made from the sounds of the fish called *scarri*, the brains of pheasants and woodcocks, the tongues of the most costly birds, and the spawn of lampreys brought from the Carpathian sea. In order to cook this dish properly, a furnace was built in the fields, as it was too large for any kitchen to contain it.

In this manner did Vitellius proceed; so that Josephus tells us, if he had reigned long, the whole empire would not have been sufficient to have maintained his gluttony. All the attendants of his court sought to raise themselves, not by their virtues and abilities, but the sumptuousness of their entertainments. This prodigality produced its attendant, want; and that, in turn, gave rise to cruelty.

Those who had formerly been his associates were now destroyed without mercy. Going to visit one of them in a violent fever, he mingled poison with his water, and delivered it to him with his own hands. He never pardoned those money-lenders who came to demand payment of his former debts. One of the number coming to salute him, he immediately ordered him to be carried off to execution; but shortly after, commanding him to be brought back, when all his attendants thought it was to pardon the unhappy creditor, Vitellius gave them soon to understood that it was merely to have the pleasure of feeding his eyes with his torments. Having condemned another to death, he executed his two sons with him, only for their presuming to intercede for their father. A Roman knight being dragged away to execution, and crying out that he had made the emperor his heir, Vitellius demanded to see the will, where finding himself joint heir with another, he ordered both to be executed, that he might enjoy the legacy without a partner.

By the continuance of such vices and cruelties as these he became odious to all mankind, and the astrologers

logers began to prognosticate his ruin. A writing was set up in the forum to this effect: "We, in the name of the ancient Chaldeans, give Vitellius warning to depart this life by the kalends of October." Vitellius, on his part, received this information with terror, and ordered all the astrologers to be banished from Rome. An old woman having foretold, that if he survived his mother, he should reign many years in happiness and security, this gave him a desire of putting her to death; which he did, by refusing her sustenance, under the pretence of its being prejudicial to her health. But he soon saw the futility of relying upon such vain prognostications; for his soldiers, by their cruelty and rapine, having become insupportable to the inhabitants of Rome, the legions of the East, who had at first acquiesced in his dominion, began to revolt, and shortly after unanimously resolved to make Vespasian emperor.

Vespasian, who was appointed commander against the rebellious Jews, had reduced most of their country, except Jerusalem, to subjection. The death of Nero, however, had at first interrupted the progress of his arms, and the succession of Galba gave a temporary check to his conquests, as he was obliged to send his son Titus to Rome, to receive that emperor's commands. Titus, however, was so long detained by contrary winds, that he received news of Galba's death before he set sail. He then resolved to continue neuter during the civil wars between Otho and Vitellius; and when the latter prevailed, he gave him his homage with reluctance. But being desirous of acquiring reputation, though he disliked the government, he determined to lay siege to Jerusalem, and actually made preparations for that great undertaking, when he was given to understand that Vitellius was detested by all ranks in the empire. These murmurings increased every day, while Vespasian secretly endeavoured to advance the discontents of the army. By these means they began at length to fix their eyes upon him as the person the most capable and willing to terminate the miseries of his country, and put a period to the injuries it suffered. Not only the legions under his command, but those in Mæsia and Pannonia, came to the same resolution, so that they declared themselves for Vespasian. He was also without his own consent proclaimed emperor at Alexandria, the army there confirming it with extraordinary applause, and paying their accustomed homage. Still, however, Vespasian seemed to decline the honour done him; till at length his soldiers compelled him, with their threats of immediate death, to accept a title which, in all probability, he wished to enjoy. He now, therefore, called a council of war: where it was resolved, that his son Titus should carry on the war against the Jews; and that Mutianus, one of his generals, should, with the greatest part of his legions, enter Italy; while Vespasian himself should levy forces in all parts of the east, in order to reinforce them in case of necessity.

During these preparations, Vitellius, though buried in sloth and luxury, was resolved to make an effort to defend the empire; wherefore his chief commanders, Valens and Cecina, were ordered to make all possible preparations to resist the invaders. The first army that entered Italy with an hostile intention was under the command of Antonius Primus, who was met by Cecina near Cremona. A battle was expected to ensue; but a negociation taking place, Cecina was prevailed upon to change sides, and declare for Vespasian. His army, however, quickly repented of what they had done; and imprisoning their general, attacked Antonius, though without a leader. The engagement continued during the whole night: in the morning, after a short repast, both armies engaged a second time; when the soldiers of Antonius saluting the rising sun, according to custom, the Vitellians supposing that they had received new reinforcements, betook themselves to flight, with the loss of 32,000 men. Shortly after, freeing their general Cecina from prison, they prevailed upon him to intercede with the conquerors for pardon; which they obtained, though not without the most horrid barbarities committed upon Cremona, the city to which they had retired for shelter. 328 Vitellius defeated.

When Vitellius was informed of the defeat of his army, his former insolence was converted into an extreme of timidity and irresolution. At length he commanded Julius Priscus and Alphenus Varus, with some forces that were in readiness, to guard the passes of the Apennines, to prevent the enemy's march to Rome; reserving the principal body of his army to secure the city, under the command of his brother Lucius. But being persuaded to repair to his army in person, his presence only served to increase the contempt of his soldiers. He there appeared irresolute, and still luxurious, without counsel or conduct, ignorant of war, and demanding from others those instructions which it was his duty to give. After a short continuance in the camp, and understanding the revolt of his fleet, he returned once more to Rome: but every day only served to render his affairs still more desperate; till at last he made offers to Vespasian of resigning the empire, provided his life were granted, and a sufficient revenue for his support. In order to enforce his request, he issued from his palace in deep mourning, with all his domestics weeping round him. He then went to offer the sword of justice to Cecilius, the consul; which he refusing, the abject emperor prepared to lay down the ensigns of the empire in the temple of Concord. But being interrrupted by some, who cried out, That he himself was Concord, he resolved, upon so weak an encouragement, still to maintain his power, and immediately prepared for his defence.

During this fluctuation of counsels, one Sabinus, who had advised Vitellius to resign, perceiving his desperate situation, resolved, by a bold step, to oblige Vespasian, and accordingly seized upon the Capitol. 329 The Capitol burnt. But he was premature in his attempt; for the soldiers of Vitellius attacked him with great fury, and, prevailing by their numbers, soon laid that beautiful building in ashes. During this dreadful conflagration, Vitellius was feasting in the palace of Tiberius, and beholding all the horrors of the assault with great satisfaction. Sabinus was taken prisoner, and shortly after executed by the emperor's command. Young Domitian, his nephew, who was afterwards emperor, escaped by flight, in the habit of a priest; and all the rest who survived the fire were put to the sword.

But this success served little to improve the affairs of Vitellius. He vainly sent messenger after messenger to bring Vespasian's general, Antonius, to a composition. This

330 Vitellius forced at Rome.

This [illegible] no answer to his requests, but still continued his march towards Rome. Being arrived before the walls of the city, the forces of Vitellius were resolved upon defending it to the utmost extremity. It was attacked on three sides with the utmost fury; while the army within, sallying upon the besiegers, defended it with equal obstinacy. The battle lasted a whole day, till at last the besieged were driven into the city, and a dreadful slaughter made of them in all the streets, which they vainly attempted to defend. In the mean time, the citizens stood by, looking on as both sides fought; and, as if they had been in a theatre, clapped their hands; at one time encouraging one party, and again the other. As either turned their backs, the citizens would then fall upon them in their places of refuge, and so kill and plunder them without mercy. But what was still more remarkable, during these dreadful slaughters both within and without the city, the people would not be prevented from celebrating one of their riotous feasts, called the *Saturnalia*; so that at one time might have been seen a strange mixture of mirth and misery, of cruelty and lewdness; in one place, buryings and slaughters; in another, drunkenness and feasting; in a word, all the horrors of a civil war, and all the licentiousness of the most abandoned security!

During this complicated scene of misery, Vitellius retired privately to his wife's house, upon mount Aventine, designing that night to fly to the army commanded by his brother at Tarracina. But, quite incapable, through fear, of forming any resolution, he changed his mind, and returned again to his palace, now void and desolate; all his slaves forsaking him in his distress, and purposely avoiding his presence. There, after wandering for some time quite disconsolate, and fearing the face of every creature he met, he hid himself in an obscure corner, from whence he was soon taken by a party of the conquering soldiers. Still, however, willing to add a few hours more to his miserable life, he begged to be kept in prison till the arrival of Vespasian at Rome, pretending that he had secrets of importance to discover. But his intreaties were vain: the soldiers binding his hands behind him, and throwing an halter round his neck, led him along, half naked, into the public forum, upbraiding him, as they proceeded, with all those bitter reproaches their malice could suggest, or his own cruelties deserve. They also tied his hair backwards, as was usual with the most infamous malefactors, and held the point of a sword under his chin, to prevent his hiding his face from the public. Some cast dirt and filth upon him as he passed, others struck him with their hands; some ridiculed the defects of his person, his red fiery face, and the enormous greatness of his belly. At length, being come to the place of punishment, they killed him with many blows; and then dragging the dead body through the streets with an hook, they threw it, with all possible ignominy, into the river Tiber. Such was the miserable end of this emperor, in the 57th year of his age, after a short reign of eight months and five days.

331 Dreadful cruelties practised by the soldiers.

Vitellius being dead, the conquering army pursued their enemies throughout the city, while neither houses nor temples afforded refuge to the fugitives. The streets and public places were all strewed with dead, each man lying slain where it was his misfortune to be overtaken by his unmerciful pursuers. But not only the enemy suffered in this manner, but many of the citizens, who were obnoxious to the soldiers, were dragged from their houses, and killed without any form of trial. The heat of their resentment being somewhat abated, they next began to seek for plunder; and under pretence of searching for the enemy, left no place without marks of their rage or rapacity. Besides the soldiers, the lower rabble joined in these detestable outrages; some slaves came and discovered the riches of their masters; some were detected by their nearest friends; the whole city was filled with outcry and lamentation; insomuch, that the former ravages of Otho and Vitellius were now considered as slight evils in comparison.

At length, however, upon the arrival of Mutianus, general to Vespasian, these slaughters ceased, and the state began to wear the appearance of former tranquillity. Vespasian was declared emperor by the unanimous consent both of the senate and the army; and dignified with all those titles, which now followed rather the power than the merit of those who were appointed to govern. Messengers were dispatched to him into Egypt, desiring his return, and testifying the utmost desire for his government. However, the winter being dangerous for sailing, he deferred his voyage to a more convenient season. Perhaps, also, the dissensions in other parts of the empire retarded his return to Rome; for one Claudius Civilis, in Lower Germany, excited his countrymen to revolt, and destroyed the Roman garrisons, which were placed in different parts of that province. But, to give his rebellion an air of justice, he caused his army to swear allegiance to Vespasian, until he found himself in a condition to throw off the mask. When he thought himself sufficiently powerful, he disclaimed all submission to the Roman government; and having overcome one or two of the lieutenants of the empire, and being joined by such of the Romans as refused obedience to the new emperor, he boldly advanced to give Cerealis, Vespasian's general, battle. In the beginning of this engagement, he seemed successful, breaking the Roman legions, and putting their cavalry to flight. But at length Cerealis by his conduct turned the fate of the day, and not only routed the enemy, but took and destroyed their camp. This engagement, however, was not decisive; several others ensued with doubtful success. An accommodation at length took place. Civilis obtained peace for his countrymen, and pardon for himself; for the Roman empire was, at this time, so torn by its own divisions, that the barbarous nations around made incursions with impunity, and were sure of obtaining peace whenever they thought proper to demand it.

332 Vespasian declared emperor at Rome.

333 Revolt of Claudius Civilis.

334 Irruption of the Sarmatians.

During the time of these commotions in Germany, the Sarmatians, a barbarous nation in the north-east of the empire, suddenly passed the river Iser, and marched into the Roman dominions with such celerity and fury, as to destroy several garrisons, and an army under the command of Fonteius Agrippa. However, they were driven back by Rubrius Gallus, Vespasian's lieutenant, into their native forests; where several attempts were made to confine them by garrisons and forts, placed along the confines of their country. But these hardy nations, having once found the way into the empire, never

never after desisted from invading it upon every opportunity, till at length they over-run and destroyed it entirely.

Vespasian continued some months at Alexandria in Egypt, where it is said he cured a blind and a lame man by touching them. Before he set out for Rome, he gave his son Titus the command of the army that was to lay siege to Jerusalem; while he himself went forward, and was met many miles from Rome by all the senate, and near half the inhabitants, who gave the sincerest testimonies of their joy, in having an emperor of such great and experienced virtues. Nor did he in the least disappoint their expectations; being equally assiduous in rewarding merit, and pardoning his adversaries; in reforming the manners of the citizens, and setting them the best example in his own.

In the mean time, Titus carried on the war against the Jews with vigour, which ended in the terrible destruction of the city, mentioned under the article Jews. After which his soldiers would have crowned Titus as conqueror; but he refused the honour, alleging that he was only an instrument in the hand of Heaven, that manifestly declared its wrath against the Jews. At Rome, however, all mouths were filled with the praises of the conqueror, who had not only showed himself an excellent general, but a courageous combatant: his return, therefore, in triumph, which he did with his father, was marked with all the magnificence and joy that was in the power of men to express. All things that were esteemed valuable or beautiful among men were brought to adorn this great occasion. Among the rich spoils were exposed vast quantities of gold taken out of the temple; but the book of their law was not the least remarkable amongst the magnificent profusion. A triumphal arch was erected upon this occasion, on which were described all the victories of Titus over the Jews, which remains almost entire to this very day. Vespasian likewise built a temple to Peace, wherein were deposited most of the Jewish spoils; and having now calmed all the commotions in every part of the empire, he shut up the temple of Janus, which had been open about five or six years.

Vespasian having thus given security and peace to the empire, resolved to correct numberless abuses which had grown up under the tyranny of his predecessors. To effect this with greater ease, he joined Titus with him in the consulship and tribunitial power, and in some measure admitted him a partner in all the highest offices of the state. He began with restraining the licentiousness of the army, and forcing them back to their pristine discipline. He abridged the processes that had been carried to an unreasonable length in the courts of justice. He took care to rebuild such parts of the city as had suffered in the late commotions; particularly the Capitol, which had been lately burnt; and which he now restored to more than former magnificence. He likewise built a famous amphitheatre, the ruins of which are to this day an evidence of its ancient grandeur. The other ruinous cities of the empire also shared his paternal care; he improved such as were declining, adorned others, and built many anew. In such acts as these he passed a long reign of clemency and moderation; so that it is said, no man suffered by an unjust or a severe decree during his administration.

Julius Sabinus seems to be the only person who was treated with greater rigour than was usual with this emperor. Sabinus was commander of a small army in Gaul, and had declared himself emperor upon the death of Vitellius. However, his army was shortly after overcome by Vespasian's general, and he himself compelled to seek safety by flight. He for some time wandered through the Roman provinces, without being discovered: but finding the pursuit every day become closer, he was obliged to hide himself in a cave; in which he remained concealed for no less than nine years, attended all the time by his faithful wife Empona, who provided provisions for him by day, and repaired to him by night. However, she was at last discovered in the performance of this pious office, and Sabinus was taken prisoner and carried to Rome. Great intercession was made to the emperor in his behalf: Empona herself appearing with her two children, and imploring her husband's pardon. However, neither her tears nor intreaties could prevail; Sabinus had been too dangerous a rival for mercy; so that, though she and her children were spared, her husband suffered by the executioner.

Rome.

337 Adventures and death of Julius Sabinus.

But this seems to be the only instance in which he resented past offences. He caused the daughter of Vitellius, his avowed enemy, to be married into a noble family, and he himself provided her a suitable fortune. One of Nero's servants coming to beg for pardon for having once rudely thrust him out of the palace, and insulted him when in office, Vespasian only took his revenge by serving him just in the same manner. When any plots or conspiracies were formed against him, he disdained to punish the guilty, saying, That they deserved rather his contempt for their ignorance, than his resentment; as they seemed to envy him a dignity of which he daily experienced the uneasiness. His liberality towards the encouragement of arts and learning, was not less than his clemency. He settled a constant salary of 100,000 sesterces upon the teachers of rhetoric. He was particularly favourable to Josephus, the Jewish historian. Quintilian the orator, and Pliny the naturalist, flourished in his reign, and were highly esteemed by him. He was no less an encourager of all other excellencies in art; and invited the greatest masters and artificers from all parts of the world, making them considerable presents, as he found occasion.

338 Clemency and good qualities of the emperor.

Yet all his numerous acts of generosity and magnificence could not preserve his character from the imputation of rapacity and avarice. He revived many obsolete methods of taxation; and even bought and sold commodities himself, in order to increase his fortune. He is charged with advancing the most avaricious governors to the provinces, in order to share their plunder on their return to Rome. He descended to some very unusual and dishonourable imposts, even to the laying a tax upon urine. When his son Titus remonstrated against the meanness of such a tax, Vespasian taking a piece of money, demanded if the smell offended him; and then added, that this very money was produced by urine. But in excuse for this, we must observe, that the exchequer, when Vespasian came to the throne, was so much exhausted, that he informed the senate that it would require a supply of three hundred millions (of our money) to re-establish the commonwealth. This necessity must naturally produce more numerous and heavy taxations than the empire had hitherto experienced: but while the provinces were thus obliged to contribute

Rome.

contribute to the support of his power, he took every precaution to provide for their safety; so that we find but two insurrections in this reign.—In the fourth year of his reign, Antiochus king of Comagena, holding a private correspondence with the Parthians, the declared enemies of Rome, was taken prisoner in Cilicia, by Pyrrhus the governor, and sent bound to Rome. But Vespasian generously prevented all ill treatment, by giving him a residence at Lacedæmon, and allowing him a revenue suitable to his dignity. About the same time also, the Alani, a barbarous people inhabiting along the river Tanais, abandoned their barren wilds, and invaded the kingdom of Media. From thence passing into Armenia, after great ravages, they overthrew Tiridates, the king of that country, with prodigious slaughter. Titus was at length sent to chastise their insolence: but the barbarians retired at the approach of the Roman army, loaded with plunder; being compelled to wait a more favourable opportunity of renewing their irruptions. These incursions, however, were but a transient storm, the effects of which were soon repaired by the emperor's moderation and assiduity. We are told, that he now formed and established a thousand nations, which had scarcely before amounted to 200. No provinces in the empire lay out of his view and protection. He had, during his whole reign, a particular regard to Britain; his generals, Petilius Cerealis, and Julius Frontinus, brought the greatest part of the island into subjection; and Agricola, who succeeded soon after, completed what they had begun. See ENGLAND.

339 Death of Vespasian.

In this manner, having reigned 10 years, loved by his subjects, and deserving their affection, he was surprised by an indisposition at Campania, which he at once declared would be fatal, crying out, in the spirit of Paganism, "Methinks I am going to be a god." Removing from thence to the city, and afterwards to a country-seat near Reate, he was there taken with a flux, which brought him to the last extremity. However, perceiving his end approach, and just going to expire, he cried out, that an emperor ought to die standing; wherefore, raising himself upon his feet, he expired in the hands of those that sustained him.

340 Titus succeeds to empire.

Titus being joyfully received as emperor, notwithstanding a slight opposition from his brother Domitian, who maintained that he himself was appointed, and that Titus had falsified the will, began his reign with every virtue that became an emperor and a man. During the life of his father there had been many imputations against him; but upon his exaltation to the throne he seemed entirely to take leave of his former vices, and became an example of the greatest moderation and humanity. He had long loved Berenice, sister to Agrippa king of Judea, a woman of the greatest beauty and allurements. But knowing that the connection with her was entirely disagreeable to the people of Rome, he sent her away, notwithstanding their mutual passion and the many arts she used to induce him to change his resolutions. He next discarded all those who had been the former ministers of his pleasures, and forbore to countenance the companions of his looser recreations, though he had formerly taken great pains in the selection. This moderation, added to his justice and generosity, procured him the love of all good men, and the appellation of the *delight of mankind*, which all his actions seemed calculated to ensure. As he came to the throne with all the advantages of his father's popularity, he was resolved to use every method to increase it. He therefore took particular care to punish all informers, false witnesses, and promoters of dissension, condemning them to be scourged in the most public streets, next to be dragged through the theatre, and then to be banished to the uninhabited parts of the empire, and sold as slaves. His courtesy and readiness to do good have been celebrated even by Christian writers; his principal rule being, never to send any petitioner dissatisfied away. One night, recollecting that he had done nothing beneficial to mankind the day preceding, he cried out among his friends, "I have lost a day." A sentence too remarkable not to be universally known

34 Destruction of Vesuvius

In this reign, an eruption of mount Vesuvius did considerable damage, overwhelming many towns, and sending its ashes into countries more than 100 miles distant. Upon this memorable occasion, Pliny the naturalist lost his life; for, being impelled by too eager a curiosity to observe the eruption, he was suffocated in the flames †. There happened also about this time a fire at Rome, which continued three days and nights successively, which was followed by a plague, in which 10,000 men were buried in a day. The emperor, however, did all that lay in his power to repair the damage sustained by the public; and, with respect to the city, declared that he would take the whole loss of it upon himself. These disasters were in some measure counterbalanced by the successes in Britain, under Agricola. This excellent general having been sent into that country towards the latter end of Vespasian's reign, showed himself equally expert in quelling the refractory, and civilizing those who had formerly submitted to the Roman power. The Ordovices, or inhabitants of North Wales, were the first that were subdued. He then made a descent upon Mona, or the island of Anglesea; which surrendered at discretion. Having thus rendered himself master of the whole country, he took every method to restore discipline to his own army, and to introduce some share of politeness among those whom he had conquered. He exhorted them, both by advice and example, to build temples, theatres, and stately houses. He caused the sons of their nobility to be instructed in the liberal arts; he had them taught the Latin language, and induced them to imitate the Roman modes of dressing and living. Thus, by degrees, this barbarous people began to assume the luxurious manners of their conquerors, and in time even outdid them in all the refinements of sensual pleasure. For the success in Britain, Titus was saluted emperor the 15th time; but he did not long survive his honours, being seized with a violent fever at a little distance from Rome. Perceiving his death to approach, he declared, that during the whole course of his life he knew but of one action which he repented of; but that action he did not think proper to express. Shortly after, he died (not without suspicion of treachery from his brother Domitian, who had long wished to govern) in the 41st year of his age, having reigned two years two months and twenty days.

† See Pliny.

34 Agricola civilizes the Britons.

34 Titus d.

34 Succeeded by Domitian.

The love which all ranks of people bore to Titus, facilitated the election of his brother Domitian, notwithstanding the ill opinion many had already conceived of him. His ambition was already but too well known,

nt. known, and his pride ſoon appeared upon his coming to the throne; having been heard to declare, that he had given the empire to his father and brother, and now received it again as his due.

The beginning of his reign was univerſally acceptable to the people, as he appeared equally remarkable for his clemency, liberality, and juſtice. He carried his abhorrence of cruelty ſo far, as at one time to forbid the ſacrificing of oxen. His liberality was ſuch, that he would not accept of the legacies that were left him by ſuch as had children of their own. His juſtice was ſuch, that he would ſit whole days and reverſe the partial ſentences of the ordinary judges. He appeared very careful and liberal in repairing the libraries which had been burnt, and recovering copies of ſuch books as had been loſt, ſending on purpoſe to Alexandria to tranſcribe them. But he ſoon began to ſhow the natural deformity of his mind. Inſtead of cultivating literature, as his father and brother had done, he neglected all kinds of ſtudy, addicting himſelf wholly to the meaner purſuits, particularly archery and gaming. No emperor before him entertained the people with ſuch various and expenſive ſhows. During theſe diverſions he diſtributed great rewards; ſitting as preſident himſelf, adorned with a purple robe and crown, with the prieſts of Jupiter and the college of Flavian prieſts about him. The meanneſs of his occupations in ſolitude were a juſt contraſt to his exhibitions in public oſtentation. He uſually ſpent his hours of retirement in catching flies, and ſticking them through with a bodkin; ſo that one of his ſervants being aſked if the emperor was alone, he anſwered, that he had not ſo much as a fly to bear him company. His vices ſeemed every day to increaſe with the duration of his reign; and as he thus became more odious to his people, all their murmurs only ſerved to add ſtrength to his ſuſpicions, and malice to his cruelty. His ungrateful treatment of Agricola ſeemed the firſt ſymptom of his natural malevolence. Domitian was always particularly fond of obtaining a military reputation, and therefore jealous of it in others. He had marched ſome time before into Gaul, upon a pretended expedition againſt the Catti, a people of Germany; and, without ever ſeeing the enemy, reſolved to have the honour of a triumph upon his return to Rome. For that purpoſe he purchaſed a number of ſlaves, whom he dreſſed in German habits; and at the head of this miſerable proceſſion entered the city, amidſt the apparent acclamations and concealed contempt of all his ſubjects. The ſucceſſes, therefore, of Agricola in Britain affected him with an extreme degree of envy. This admirable general, who is ſcarce mentioned by any writer except Tacitus, purſued the advantages which he had already obtained. He routed the Caledonians; overcame Galgacus, the Britiſh chief, at the head of 30,000 men; and afterwards ſending out a fleet to ſcour the coaſt, firſt diſcovered Great Britain to be an iſland*. He likewiſe diſcovered and ſubdued the Orkneys, and thus reduced the whole into a civilized province of the Roman empire. When the account of theſe ſucceſſes was brought to Domitian, he received it with a ſeeming pleaſure, but real uneaſineſs. He thought Agricola's riſing reputation a reproach upon his own inactivity; and, inſtead of attempting to emulate, he reſolved to ſuppreſs the merit of his ſervices. He ordered him, therefore, the external marks of his approbation, and took care that triumphant ornaments, ſtatues, and other honours, ſhould be decreed him; but at the ſame time he removed him from his command, under a pretence of appointing him to the government of Syria. By theſe means, Agricola ſurrendered up his government to Saluſtius Lucullus, but ſoon found that Syria was otherwiſe diſpoſed of. Upon his return to Rome, which was privately and by night, he was coolly received by the emperor; and dying ſome time after in retirement, it was ſuppoſed by ſome that his end was haſtened by Domitian's direction.

Rome

345 nor vices.

* Scot-

Domitian ſoon after found the want of ſo experienced a commander in the many irruptions of the barbarous nations that ſurrounded the empire. The Sarmatians in Europe, joined with thoſe in Aſia, made a formidable invaſion; at once deſtroying a whole legion and a general of the Romans. The Dacians, under the conduct of Decebalus their king, made an irruption, and overthrew the Romans in ſeveral engagements. Loſſes were followed by loſſes, ſo that every ſeaſon became memorable for ſome remarkable overthrow. At laſt, however, the ſtate making a vigorous exertion of its internal power, the barbarians were repelled, partly by force and partly by the aſſiſtance of money, which only ſerved to enable them to make future invaſions to greater advantage. But in whatever manner the enemy might have been repelled, Domitian was reſolved not to loſe the honour of a triumph. He returned in great ſplendor to Rome; and not contented with thus triumphing twice without a victory, he reſolved to take the ſurname of *Germanicus*, for his conqueſt over a people with whom he never contended.

Man. barous na-

In proportion as the ridicule increaſed againſt him, his pride ſeemed every day to demand greater homage. He would permit his ſtatues to be made only of gold and ſilver; aſſumed to himſelf divine honours; and ordered that all men ſhould treat him with the ſame appellations which they gave to the divinity. His cruelty was not behind his arrogance; he cauſed numbers of the moſt illuſtrious ſenators and others to be put to death upon the moſt trifling pretences. Saluſtius Lucullus, his lieutenant in Britain, was deſtroyed only for having given his own name to a new ſort of lances of his own invention. Junius Ruſticus died for publiſhing a book, in which he commended Thraſea and Priſcus, two philoſophers who oppoſed Veſpaſian's coming to the throne.

Such cruelties as theſe, that ſeem almoſt without a motive, may naturally be ſuppoſed to have produced rebellion. Lucius Antonius, governor in Upper Germany, knowing how much the emperor was deteſted at home, aſſumed the enſigns of imperial dignity. As he was at the head of a formidable army, his ſucceſs remained long doubtful; but a ſudden overflowing of the Rhine dividing his army, he was ſet upon at that juncture by Normandus, the emperor's general, and totally routed. The news of this victory, we are told, was brought to Rome by ſupernatural means, on the ſame day that the battle was fought. Domitian's ſeverity was greatly increaſed by this ſucceſs, of ſhort duration. In order to diſcover thoſe who were accomplices with the adverſe party, he invented new tortures, ſometimes cutting off the hands, at other times thruſting fire into the privities, of the people whom he ſuſpected of being his enemies. During theſe cruelties, he aggravated their

347 Monſtrous cruelty of the emperor.

Rome.

their guilt by hypocrisy, never pronouncing sentence without a preamble full of gentleness and mercy. He was particularly terrible to the senate and nobility, the whole body of whom he frequently threatened entirely to extirpate. At one time, he surrounded the senate-house with his troops, to the great consternation of the senators. At another, he resolved to amuse himself with their terrors in a different manner. Having invited them to a public entertainment, he received them all very formally at the entrance of his palace, and conducted them into a spacious hall, hung round with black, and illuminated by a few melancholy lamps, that diffused light only sufficient to show the horrors of the place. All around were to be seen nothing but coffins, with the names of each of the senators written upon them, together with other objects of terror, and instruments of execution. While the company beheld all the preparations with silent agony, several men, having their bodies blackened, each with a drawn sword in one hand and a flaming torch in the other, entered the hall, and danced round them. After some time, when the guests expected nothing less than instant death, well knowing Domitian's capricious cruelty, the doors were set open, and one of the servants came to inform them, that the emperor gave all the company leave to withdraw.

These cruelties were rendered still more odious by his lust and avarice. Frequently after presiding at an execution, he would retire with the lewdest prostitutes, and use the same baths which they did. His avarice, which was the consequence of his profusion, knew no bounds. He seized upon the estates of all against whom he could find the smallest pretensions; the most trifling action or word against the majesty of the prince was sufficient to ruin the possessor. He particularly exacted large sums from the rich Jews; who even then began to practise the art of peculation, for which they are at present so remarkable. He was excited against them, not only by avarice, but by jealousy. A prophecy had been long current in the east, that a person from the line of David should rule the world. Whereupon, this suspicious tyrant, willing to evade the prediction, commanded all the Jews of the lineage of David to be diligently sought out, and put to death. Two Christians, grandsons of St Jude the apostle, of that line, were brought before him; but finding them poor, and no way ambitious of temporal power, he dismissed them, considering them as objects too mean for his jealousy. However, his persecution of the Christians was more severe than that of any of his predecessors. By his letters and edicts they were banished in several parts of the empire, and put to death with all the tortures of ingenious cruelty. The predictions of Chaldeans and astrologers also, concerning his death, gave him most violent apprehensions, and kept him in the most tormenting disquietude. As he approached towards the end of his reign, he would permit no criminal, or prisoner, to be brought into his presence, till they were bound in such a manner as to be incapable of injuring him; and he generally secured their chains in his own hands. His jealousies increased to that degree, that he ordered the gallery in which he walked to be set round with a pellucid stone, which served as a mirror to reflect the persons of all such as approached him from behind. Every omen and prodigy gave him fresh anxiety.

348 He persecutes the Jews and Christians.

But a period was soon to be put to this monster's cruelty. Among the number of those whom he at once caressed and suspected, was his wife Domitia, whom he had taken from Ælius Lama, her former husband. This woman, however, was become obnoxious to him, for having placed her affections upon one Paris, a player; and he resolved to dispatch her, with several others that he either hated or suspected. It was the tyrant's method to put down the names of all such as he intended to destroy in his tablets, which he kept about him with great circumspection. Domitia, fortunately happening to get a sight of them, was struck at finding her own name in the catalogue of those fated to destruction. She showed the fatal list to Norbanus and Petronius, præfects of the prætorian bands, who found themselves set down; as likewise to Stephanus, the comptroller of the household, who came into the conspiracy with alacrity. Parthenius also, the chief chamberlain, was of the number. These, after many consultations, determined on the first opportunity to put their design in execution; and at length fixed on the 18th day of September for the completion of their attempt. Domitian, whose death was every day foretold by the astrologers, who, of consequence, must at last be right in their predictions, was in some measure apprehensive of that day; and as he had been ever timorous, so he was now more particularly upon his guard. He had some time before secluded himself in the most secret recesses of his palace; and at midnight was so affrighted as to leap out of his bed, inquiring of his attendants what hour of the night it was. Upon their falsely assuring him that it was an hour later than that which he was taught to apprehend, quite transported, as if all danger was past, he prepared to go to the bath. Just then, Parthenius his chamberlain came to inform him that Stephanus the comptroller of his household desired to speak to him upon an affair of the utmost importance. The emperor having given orders that his attendants should retire, Stephanus entered with his hand in a scarf, which he had worn thus for some days, the better to conceal a dagger, as none were permitted to approach the emperor except unarmed.—He began by giving information of a pretended conspiracy, and exhibited a paper in which the particulars were specified. While Domitian was reading the contents with an eager curiosity, Stephanus drew his dagger, and struck him in the groin. The wound not being mortal, Domitian caught hold of the assassin, and threw him upon the ground, calling out for assistance. He demanded also his sword, that was usually placed under his pillow; and a boy who attended in the apartment running to fetch it, found only the scabbard, for Parthenius had previously removed the blade. The struggle with Stephanus still continued: Domitian still kept him under, and at one time attempted to wrest the dagger from his hand, at another to tear out his eyes with his fingers. But Parthenius, with his freedman, a gladiator, and two subaltern officers, now coming in, ran all furiously upon the emperor, and dispatched him with many wounds. In the mean time, some of the officers of the guard being alarmed, came to his assistance, but too late to save him; however, they slew Stephanus on the spot.

349 He is murdered.

When it was publicly known that Domitian was slain, the joy of the senate was so great, that being assembled with the utmost haste, they began to load his

memory with every reproach. His ſtatues were commanded to be taken down; and a decree was made, that all his inſcriptions ſhould be eraſed, his name ſtruck out of the regiſters of fame, and his funeral omitted. The people, who now took little part in the affairs of government, looked on his death with indifference; the ſoldiers alone, whom he had loaded with favours, and enriched by largeſſes, ſincerely regretted their benefactor. The ſenate, therefore, reſolved to provide a ſucceſſor before the army could have an opportunity of taking the appointment upon themſelves: and Cocceius Nerva was choſen to the empire the very day on which the tyrant was ſlain.

Nerva was of an illuſtrious family, as moſt ſay, by birth a Spaniard, and above 65 years old when he was called to the throne. He was, at that time, the moſt remarkable man in Rome, for his virtues, moderation, and reſpect to the laws; and he owed his exaltation to the blameleſs conduct of his former life. When the ſenate went to pay him their ſubmiſſions, he received them with his accuſtomed humility; while Arius Antonius, his moſt intimate friend, having embraced him with great familiarity, congratulated him on his acceſſion to the empire: and indeed no emperor had ever ſhewn himſelf more worthy of the throne than Nerva; his only fault being that he was too indulgent, and often made a prey by his inſidious courtiers.

However, an exceſs of indulgence and humanity were faults that Rome could eaſily pardon, after the cruelties of ſuch an emperor as Domitian. Being long accuſtomed to tyranny, they regarded Nerva's gentle reign with rapture, and even gave his imbecility the name of benevolence. Upon coming to the throne, he ſolemnly ſwore that no ſenator of Rome ſhould be put to death by his command, during his reign, though they gave ever ſo juſt a cauſe. He conferred great favours, and beſtowed large gifts, upon his particular friends. His liberality was ſo extenſive, that, upon his firſt promotion to the empire, he was conſtrained to ſell his gold and ſilver plate, with his other rich moveables, to enable him to continue his liberalities. He releaſed the cities of the empire from many ſevere impoſitions, which had been laid upon them by Veſpaſian; took off a rigorous tribute, which had been laid upon carriages; and reſtored thoſe to their property who had been unjuſtly diſpoſſeſſed by Domitian.

During his ſhort reign he made ſeveral good laws. He particularly prohibited the caſtration of male children; which had been likewiſe condemned by his predeceſſor, but not wholly removed. He put all thoſe ſlaves to death who had, during the laſt reign, informed againſt their maſters. He permitted no ſtatues to be erected to honour him, and converted into money ſuch of Domitian's as had been ſpared by the ſenate. He ſold many rich robes, and much of the ſplendid furniture of the palace, and retrenched ſeveral unreaſonable expences at court. At the ſame time, he had ſo little regard for money, that when Herodes Atticus, one of his ſubjects, had found a large treaſure, and wrote to the emperor how to diſpoſe of it, he received for anſwer, that he might *uſe it*; but the finder ſtill informing the emperor that it was a fortune too large for a private perſon, Nerva, admiring his honeſty, wrote him word, that then he might *abuſe it*.

A life of ſuch generoſity and mildneſs was not, however, without its enemies. Calpurnius Craſſus, with ſome others, formed a dangerous conſpiracy to deſtroy him; but Nerva would uſe no ſeverity: he reſted ſatisfied with baniſhing thoſe who were culpable, though the ſenate were for inflicting more rigorous puniſhments. But the moſt dangerous inſurrection againſt his intereſts was from the prætorian bands; who, headed by Caſparius Olianus, inſiſted upon revenging the late emperor's death, whoſe memory was ſtill dear to them from his frequent liberalities. Nerva, whoſe kindneſs to good men rendered him ſtill more obnoxious to the vicious, did all in his power to ſtop the progreſs of this inſurrection; he preſented himſelf to the mutinous ſoldiers, and, opening his boſom, deſired them to ſtrike there, rather than be guilty of ſo much injuſtice. The ſoldiers, however, paid no regard to his remonſtrances; but, ſeizing upon Petronius and Parthenius, ſlew them in the moſt ignominious manner. Not content with this, they even compelled the emperor to approve of their ſedition, and to make a ſpeech to the people, in which he thanked the cohorts for their fidelity. So diſagreeable a conſtraint upon the emperor's inclinations was, in the end, attended with the moſt happy effects, as it cauſed the adoption of Trajan to ſucceed him in the empire. Nerva perceived that in the preſent turbulent diſpoſition of the times, he ſtood in need of an aſſiſtant in the empire, who might ſhare the fatigues of government, and contribute to keep the licentious in awe. For this purpoſe, ſetting aſide all his own relations, he fixed upon Ulpius Trajan, an utter ſtranger to his family, who was then governor in Upper Germany, to ſucceed him. Having put his determination in execution, and performed the accuſtomed ſolemnities, he inſtantly ſent off ambaſſadors to Cologne, where Trajan then reſided, intreating his aſſiſtance in puniſhing thoſe from whom he had received ſuch an inſult. The adoption of this admirable man, proved ſo great a curb to the licentiouſneſs of the ſoldiery, that they continued in perfect obedience during the reſt of this reign; and Caſparius being ſent to him, was, by his command, either baniſhed or put to death.

354 Adopts Trajan as his ſucceſſor.

The adopting Trajan was the laſt public act of Nerva. In about three months after, having put himſelf in a violent paſſion with one Regulus a ſenator, he was ſeized with a fever, of which he ſhortly after died, after a ſhort reign of one year four months and nine days. He was the firſt foreign emperor who reigned in Rome, and juſtly reputed a prince of great generoſity and moderation. He is alſo celebrated for his wiſdom, though with leſs reaſon, the greateſt inſtance he gave of it, during his reign, being in the choice of his ſucceſſor.

355 Death of Nerva.

Trajan's family was originally from Italy, but he himſelf was born in Seville in Spain. He very early accompanied his father, who was a general of the Romans, in his expeditions along the Euphrates and the Rhine; and while yet very young, acquired a conſiderable reputation for military accompliſhments. He enured his body to fatigue: he made long marches on foot; and laboured to acquire all that ſkill in war which was neceſſary for a commander. When he was made general of the army in Lower Germany, which was one of the moſt conſiderable employments in the empire, it made no alteration in his manners or way of living; and the commander was ſeen noway differing from the private tribune, except in his ſuperior wiſdom and virtues.

356 Great qualities of Trajan.

Rome.

tues. The great qualities of his mind were accompanied with all the advantages of perſon. His body was majeſtic and vigorous; he was at that middle time of life which is happily tempered with the warmth of youth and the caution of age, being 42 years old. To theſe qualities were added, a modeſty that ſeemed peculiar to himſelf alone; ſo that mankind found a pleaſure in praiſing thoſe accompliſhments of which the poſſeſſor ſeemed no way conſcious. Upon the whole, Trajan is diſtinguiſhed as the greateſt and the beſt emperor of Rome. Others might have equalled him in war, and ſome might have been his rivals in clemency and goodneſs; but he ſeems the only prince who united theſe talents in the greateſt perfection, and who appears equally to engage our admiration and our regard. Upon being informed of the death of Nerva, he prepared to return to Rome, whither he was invited by the united intreaties of the ſtate. He therefore began his march with a diſcipline that was for a long time unknown in the armies of the empire. The countries through which he paſſed were neither ravaged nor taxed, and he entered the city, not in a triumphant manner, though he had deſerved it often, but on foot, attended by the civil officers of the ſtate, and followed by his ſoldiers, who marched ſilently forward with modeſty and reſpect. It would be tedious and unneceſſary to enter into a detail of this good monarch's labours for the ſtate. His application to buſineſs, his moderation to his enemies, his modeſty in exaltation, his liberality to the deſerving, and his frugality in his own expences; theſe have all been the ſubject of panegyric among his contemporaries, and they continue to be the admiration of poſterity. Upon giving the prefect of the pretorian band the ſword, according to cuſtom, he made uſe of this remarkable expreſſion, "Take this ſword, and uſe it, if I have merit, for me; if otherwiſe, againſt me." After which he added, That he who gave laws was the firſt who was bound to obſerve them. His failings were his love of women, which, however, never hurried him beyond the bounds of decency; and his immoderate paſſion for war, to which he had been bred up from his childhood. The firſt war he was engaged in after his coming to the throne was with the Dacians, who, during the reign of Domitian, had committed numberleſs ravages upon the provinces of the empire. He therefore raiſed a powerful army, and with great expedition marched into thoſe barbarous countries, where he was vigorouſly oppoſed by Decebalus, the Dacian king, who for a long time withſtood his boldeſt efforts; but was at laſt entirely reduced, and his kingdom made a Roman province, See DACIA. At his return to Rome, he entered the city in triumph; and the rejoicings for his victories laſted for the ſpace of 120 days.

Having thus given peace and proſperity to the empire, Trajan continued his reign, loved, honoured, and almoſt adored, by his ſubjects. He adorned the city with public buildings; he freed it from ſuch men as lived by their vices; he entertained perſons of merit with the utmoſt familiarity; and ſo little feared his enemies, that he could ſcarcely be induced to ſuppoſe that he had any.

357 He perſecutes the Chriſtians.

It had been happy for this great prince's memory, if he had ſhown equal clemency to all his ſubjects; but, about the ninth year of his reign, he was perſuaded to look upon the Chriſtians with a ſuſpicious eye. The extreme veneration which he profeſſed for the religion of the empire, ſet him ſeduloufly to oppoſe every innovation, and the progreſs of Chriſtianity ſeemed to alarm him. A law had for ſome time before been paſſed, in which all Heteriæ, or ſocieties diſſenting from the eſtabliſhed religion, were conſidered as illegal, being reputed nurſeries of impoſture and ſedition. Under the ſanction of this law, the Chriſtians were perſecuted in all parts of the empire. Great numbers of them were put to death, as well by popular tumults as by edicts and judicial proceedings. However, the perſecution ceaſed after ſome time; for the emperor having advice from Pliny, the pro-conſul in Bithynia, of the innocence and ſimplicity of the Chriſtians, and of their inoffenſive and moral way of living, he ſuſpended their puniſhments. But a total ſtop was put to them upon Tiberianus the governor of Paleſtine's ſending him word, That he was wearied out with executing the laws againſt the Galileans, who crouded to execution in ſuch multitudes, that he was at a loſs how to proceed. Upon this information, the emperor gave orders, that the Chriſtians ſhould not be ſought after; but if any offered themſelves, that they ſhould ſuffer. In this manner the rage of perſecution ceaſed, and the emperor found leiſure to turn the force of his arms againſt the Armenians and Parthians, who now began to throw off all ſubmiſſion to Rome.

358 Inſurrection of the Jews.

While he was employed in theſe wars, there was a dreadful inſurrection of the Jews in all parts of the empire. This wretched people, ſtill infatuated, and ever expecting ſome ſignal deliverer, took the advantage of Trajan's abſence in the eaſt to maſſacre all the Greeks and Romans whom they got into their power, without reluctance or mercy. This rebellion firſt began in Cyrene, a Roman province in Africa; from thence the flame extended to Egypt, and next to the iſland of Cyprus. Theſe places they in a manner diſpeopled with ungovernable fury. Their barbarities were ſuch, that they eat the fleſh of their enemies, wore their ſkins, ſawed them aſunder, caſt them to wild beaſts, made them kill each other, and ſtudied new torments by which to deſtroy them. However, theſe cruelties were of no long duration: the governors of the reſpective provinces making head againſt their tumultuous fury, ſoon treated them with a retaliation of cruelty, and put them to death, not as human beings, but as outrageous peſts to ſociety. As the Jews had practiſed their cruelties in Cyprus particularly, a law was publicly enacted, by which it was made capital for any Jew to ſet foot on the iſland.

359 Succeſſes of Trajan in the eaſt.

During theſe bloody tranſactions, Trajan was proſecuting his ſucceſſes in the eaſt. His firſt march was into Armenia, the king of which country had diſclaimed all alliance with Rome; and received the enſigns of royalty and dominion from the monarch of Parthia. However, upon the news of Trajan's expedition, his fears were ſo great, that he abandoned his country to the invaders; while the greateſt part of his governors and nobility came ſubmiſſively to the emperor, acknowledging themſelves his ſubjects, and making him the moſt coſtly preſents. Having in this manner taken poſſeſſion of the whole country, and gotten the king into his power, he marched into the dominions of the king

king of Parthia. There entering the opulent kingdom of Mesopotamia, he reduced it into the form of a Roman province. From thence he went against the Parthians, marching on foot at the head of his army; in this manner crossing the rivers, and conforming to all the severities of discipline which were imposed on the meanest soldier. His successes against the Parthians were great and numerous. He conquered Syria and Chaldea, and took the famous city of Babylon. Here, attempting to cross the Euphrates, he was opposed by the enemy, who were resolved to stop his passage: but he secretly caused boats to be made upon the adjoining mountains; and bringing them to the water side, passed his army with great expedition, not, however, without great slaughter on both sides. From thence he traversed tracts of country which had never before been invaded by a Roman army, and seemed to take a pleasure in pursuing the same march which Alexander the Great had formerly marked out for him. Having passed the rapid streams of the Tigris, he advanced to the city Ctesiphon, which he took, and opened himself a passage into Persia, where he made many conquests, that were rather splendid than serviceable. After subduing all the country bordering on the Tigris, he marched southward to the Persian gulph, where he subdued a monarch who possessed a considerable island made by the divided streams of that river. Here, winter coming on, he was in danger of losing the greatest part of his army by the inclemency of the climate and the inundations of the river. He therefore with indefatigable pains fitted out a fleet, and sailing down the Persian gulph, entered the Indian ocean, conquering, even to the Indies, and subduing a part of them to the Roman empire. He was prevented from pursuing further conquests in this distant country, both by the revolt of many of the provinces he had already subdued, and by the scarcity of provisions, which seemed to contradict the reports of the fertility of the countries he was induced to invade. The inconveniences of increasing age also contributed to damp the ardour of this enterprise, which at one time he intended to pursue to the confines of the earth. Returning, therefore, along the Persian gulph, and sending the senate a particular account of all the nations he had conquered, the names of which alone composed a long catalogue, he prepared to punish those countries which had revolted from him. He began by laying the famous city of Edessa, in Mesopotamia, in ashes; and in a short space of time, not only retook all those places which had before acknowledged subjection, but conquered many other provinces, so as to make himself master of the most fertile kingdoms of all Asia. In this train of successes he scarce met with a repulse, except before the city Atra, in the deserts of Arabia. Wherefore judging that this was a proper time for bounding his conquests, he resolved to give a master to the countries he had subdued. With this resolution he repaired to the city Ctesiphon, in Persia; and there, with great ceremony, crowned Parthamaspates king of Parthia, to the great joy of all his subjects. He established another king also over the kingdom of Albania, near the Caspian sea. Then placing governors and lieutenants in other provinces, he resolved to return to his capital in a more magnificent manner than any of his predecessors had done before him. He accordingly left Adrian general of all his forces in the east; and continued his journey towards Rome, where the most magnificent preparations were made for his arrival. However, he had not got farther than the province of Cilicia, when he found himself too weak to proceed in his usual manner. He therefore caused himself to be carried on ship-board to the city of Seleucia, where he died of the apoplexy, having been attacked by that disorder once before. During the time of his indisposition, his wife Plotina constantly attended near him; and, knowing the emperor's dislike to Adrian, it is thought forged the will, by which he was adopted to succeed. Rome.

Trajan died in the 63d year of his age, after a reign of nineteen years six months and fifteen days. How highly he was esteemed by his subjects appears by their manner of blessing his successors, always wishing them the fortune of Augustus, and the goodness of Trajan. His military virtues, however, upon which he chiefly valued himself, produced no real advantages to his country; and all his conquests disappeared, when the power was withdrawn that enforced them. 365 He dies, and is succeeded by Adrian.

Adrian was by descent a Spaniard, and his ancestors were of the same city where Trajan was born. He was nephew to Trajan, and married to Sabina his grand-niece. When Trajan was adopted to the empire, Adrian was tribune of the army in Mœsia, and was sent by the troops to congratulate the emperor on his advancement. However, his brother-in-law, who desired to have an opportunity of congratulating Trajan himself, supplied Adrian with a carriage that broke down on the way. But Adrian was resolved to lose no time, and performed the rest of the journey on foot. This assiduity was very pleasing to the emperor; but he disliked Adrian from several more prevailing motives. His kinsman was expensive, and involved in debt. He was, besides, inconstant, capricious, and apt to envy another's reputation. These were faults, that, in Trajan's opinion, could not be compensated either by his learning or his talents. His great skill in the Greek and Latin languages, his intimate acquaintance with the laws of his country and the philosophy of the times, were no inducement to Trajan, who, being bred himself a soldier, desired to have a military man to succeed him. For this reason it was that the dying emperor would by no means appoint a successor; fearful, perhaps, of injuring his great reputation, by adopting a person that was unworthy. His death, therefore, was concealed for some time by Plotina his wife, till Adrian had sounded the inclinations of the army, and found them firm in his interests. They then produced a forged instrument, importing that Adrian was adopted to succeed in the empire. By this artifice he was elected by all orders of the state, though then absent from Rome, being left at Antioch as general of the forces in the east.

Upon Adrian's election, his first care was to write the senate, excusing himself for assuming the empire without their previous approbation; imputing it to the hasty zeal of the army, who rightly judged that the senate ought not long to remain without a head. He then began to pursue a course quite opposite to that of his predecessor, taking every method of declining war, and promoting the arts of peace. He was quite satisfied with preserving the ancient limits of the empire, and seemed no way ambitious of extensive conquest.

For this reason he abandoned all the conquests which Trajan had made, judging them to be rather an inconvenience than an advantage to the empire; and made the river Euphrates the boundary of the empire, placing the legions along its banks to prevent the incursions of the enemy.

361 He abandons all the eastern conquests of Adrian.

Having thus settled the affairs of the east, and leaving Severus governor of Syria, he took his journey by land to Rome, sending the ashes of Trajan thither by sea. Upon his approach to the city, he was informed of a magnificent triumph that was preparing for him; but this he modestly declined, desiring that those honours might be paid to Trajan's memory which they had designed for him. In consequence of this command, a most superb triumph was decreed, in which Trajan's statue was carried as a principal figure in the procession, it being remarked that he was the only man that ever triumphed after he was dead. Not content with paying him these extraordinary honours, his ashes were placed in a golden urn, upon the top of a column 140 feet high. On this were engraven the particulars of all his exploits in basso relievo; a work of great labour, and which is still remaining. These testimonies of respect to the memory of his predecessor did great honour to the heart of Adrian. His virtues, however, were contrasted by a strange mixture of vices; or to say the truth, he wanted strength of mind to preserve his general rectitude of character without deviation. As an emperor, however, his conduct was most admirable, as all his public transactions appear dictated by the soundest policy and the most disinterested wisdom. But these being already enumerated under the article ADRIAN, it would be superfluous to repeat them in this place. He was succeeded by Marcus Antoninus, afterwards surnamed the *Pious*, whom he had adopted some time before his death. See *ANTONINUS Pius*.

362 Causes of the decline of the Roman empire.

From the beginning of the reign of Antoninus Pius, we may date the decline of the Roman empire. From the time of Cæsar to that of Trajan, scarce any of the emperors had either abilities or inclination to extend the limits of the empire, or even to defend it against the barbarous nations who surrounded it. During all this space, only some inconsiderable provinces to the northward of Italy, and part of the island of Britain, had been subjugated. However, as yet, nothing was lost; but the degeneracy and corruption of the people had sown those seeds of dissolution which the empire quickly began to feel. The disorders were grown to such an height, that even Trajan himself could not cure them. Indeed his eastern conquests could scarce have been preserved though the republic had been existing in all its glory; and therefore they were quietly resigned by his successor Adrian, as too distant, disaffected, and ready to be over-run by the barbarous nations. The province of Dacia, being nearer to the centre of government, was more easily preserved; and of consequence remained for a long time subject to Rome. During the 23 years of the reign of Antoninus, few remarkable events happened. The historians of those times are excessive in their praises of his justice, generosity, and other virtues, both public and private. He put a stop to the persecution of the Christians, which raged in the time of Trajan and Adrian, and reduced the Brigantes, a tribe of Britons, who had revolted. However, during his reign, several calamities befel the empire. The Tiber, overflowing its banks, laid the lower part of Rome under water. The inundation was followed by a fire, and this by a famine, which swept off great numbers, though the emperor took the utmost care to supply the city from the most distant provinces. At the same time the cities of Narbonne in Gaul, and Antioch in Syria, together with the great square in Carthage, were destroyed by fire; however, the emperor soon restored them to their former condition. He died in the year 163, universally lamented by his subjects, and was succeeded by Marcus Aurelius, surnamed the *Philosopher*, whom he had adopted towards the latter end of his reign.

The transactions of this emperor the reader will find related under the article *ANTONINUS Philosophus* (A).

After

(A) As, after the death of Marcus Aurelius, the Roman empire declined very fast, it may not be amiss here to give some account of the military and other establishments of the Roman emperors. Mr Gibbon observes, that, in the times of the commonwealth, the use of arms was confined to those who had some property to defend, and an interest in maintaining the laws which were proposed to be enacted. But, as the public freedom declined, and war became degraded into a trade, those who had the property of the country chose rather to hire others than to expose their own persons, as is the case with our modern armies. Yet, even after all consideration of property had been laid aside among the common soldiers, the officers continued to be chosen from among those who had a liberal education, together with a good share of property. However, as the common soldiers, in which the strength of an army consists, had now no more of that virtue called *patriotism*, the legions which were formerly almost invincible, no longer fought with the same ardour as before. In former times, the profession of a soldier was more honourable than any other; but, when the soldiers came to be looked upon as hirelings, the honour of the profession sunk of course, and, by this means, one of the strongest motives which the soldiers had to submit to their severe discipline, and exert themselves against their enemies, was removed. On the very first entrance of a soldier into the Roman service, a solemn oath was administered to him, by which he engaged never to desert his standard; to submit his own will to that of his leaders, and to sacrifice his life for the safety of the emperor and the empire. The attachment which the Romans had to their standards was indeed astonishing. The golden eagle, which appeared in the front of the legion, was almost an object of adoration with them; and it was esteemed impious, as well as ignominious, to abandon that sacred ensign in the time of danger. The centurions had a right to punish with blows, the generals with death; and it was an inflexible maxim of the Roman discipline, that a good soldier should dread his officers much more than the enemy.

Notwithstanding all this, so sensible were the Romans of the insufficiency of mere valour without skill, that military

After the death of Marcus Aurelius, his ſon Commodus ſucceeded to the imperial throne without oppoſition. He was in every reſpect unworthy of his father; and ſo prone to vice, that he was generally believed to have been the ſon, not of Marcus Aurelius, but of a celebrated gladiator, with whom the empreſs Fauſtina

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military exerciſes were the unremitted object of their diſcipline. The recruits and young ſoldiers were conſtantly trained both in the morning and evening; and even the veterans were not excuſed from the daily repetition of their exerciſe. Large ſheds were erected in the winter-quarters of the troops, that theſe uſeful labours might not be interrupted by tempeſtuous weather, and the weapons uſed in theſe imitations of war were always twice as heavy as thoſe made uſe of in real action. The ſoldiers were diligently inſtructed to march, to run, leap, ſwim, carry heavy burdens, and handle every ſpecies of weapon either for offence or defence; to form a variety of evolutions; and to move to the ſound of flutes in the pyrrhic or martial dance. It was the policy of the ableſt generals, and even of the emperors themſelves, to encourage theſe military ſtudies by their preſence and example; and we are informed that Adrian, as well as Trajan, frequently condeſcended to inſtruct the unexperienced ſoldiers, to reward the diligent, and ſometimes to diſpute with them the prize of ſuperior ſtrength and dexterity. Under the reigns of thoſe princes, the ſcience of tactics was cultivated with ſucceſs; and, as long as the empire retained any vigour, their military inſtructions were reſpected as the moſt perfect model of Roman diſcipline.

From the foundation of the city, as the Romans had in a manner been continually engaged in war, many alterations had taken place in the conſtitution of the legions. In the time of the emperors, the heavy-armed infantry, which compoſed its principal ſtrength, was divided into 10 cohorts and 55 companies, under the orders of a correſpondent number of tribunes and centurions. The firſt cohort, which always claimed the poſt of honour and the cuſtody of the eagle, was formed of 1105 ſoldiers, the moſt approved for valour and fidelity. The remaining nine cohorts conſiſted each of 555; and the whole body of legionary infantry conſiſted of 6100 men. Their arms were uniform, and excellently adapted to the nature of their ſervice; an open helmet with a lofty creſt; a breaſt-plate or coat of mail; greaves on their legs, and a large buckler on their left arm. Their buckler was of an oblong and concave figure, four feet in length, and two and an half in breadth; framed of a light wood, covered with a bull's hide, and ſtrongly guarded with braſs plates. Beſides a lighter ſpear, the legionary carried the pilum, a ponderous javelin about ſix feet long, and terminated by a maſſy triangular point of ſteel 18 inches in length. This weapon could do execution at the diſtance of 10 or 12 paces; but its ſtroke was ſo powerful, that no cavalry durſt venture within its reach, and ſcarce any armour could be formed proof againſt it. As ſoon as the Roman had darted his pilum, he drew his ſword, and ruſhed forward to cloſe with the enemy. It was a ſhort well-tempered Spaniſh blade with a double edge, and equally calculated for the purpoſes of puſhing and ſtriking; but the ſoldier was always inſtructed to prefer the former uſe of his own weapon, as his body remained thereby the leſs expoſed, while at the ſame time he inflicted a more dangerous wound on his adverſary. The legion was uſually drawn up eight deep; and the regular diſtance of three feet was left between the files and ranks. Thus the ſoldier poſſeſſed a free ſpace for his arms and motions; and ſufficient intervals were allowed, through which ſeaſonable reinforcements might be introduced to the relief of the combatants. The cavalry, without which the force of the legion remained imperfect, was divided into ten troops or ſquadrons: the firſt, as the companion of the firſt cohort, conſiſted of 132 men; whilſt each of the other nine amounted only to 66. The entire eſtabliſhment formed a body of 726 horſe, naturally connected with its reſpective legion; but occaſionally acting in the line, and compoſing a part of the wings of the army. The cavalry of the ancient republic was compoſed of the nobleſt youths of Rome and Italy, who, by performing their military ſervice on horſeback, prepared themſelves for the offices of ſenator and conſul; but after the alteration of manners and government which took place at the end of the commonwealth, the moſt wealthy of the equeſtrian order were engaged in the adminiſtration of juſtice and of the revenue; and, whenever they embraced the profeſſion of arms, they were immediately entruſted with a troop of horſe or a cohort of foot, and the cavalry, as well as the infantry, were recruited from the provinces. The horſes were bred for the moſt part in Spain, or in Cappadocia. The Roman troopers deſpiſed the complete armour which encumbered the cavalry of the eaſt. Inſtead of this, their arms conſiſted only of an helmet, an oblong ſhield, light boots, and a coat of mail. A javelin and a long broad ſword were their principal offenſive weapons. They ſeem to have borrowed the uſe of lances and iron maces from the barbarians.

Beſides the legionaries, the Romans, eſpecially in the times of the emperors, began to take auxiliaries into their pay. Conſiderable levies were regularly made among thoſe provincials who had not yet attained to the rank of Roman citizens. Many dependent princes and communities, diſperſed round the frontiers, were permitted, for a while, to hold their freedom and ſecurity by the tenure of military ſervice. Even ſelect troops of barbarians were compelled to enter into the ſervice; which was afterwards found to be a moſt deſtructive expedient, not only as it carried the Roman military ſkill among barbarians who were otherwiſe unacquainted with it, but it gave theſe auxiliaries themſelves frequent opportunities of revolting, and at laſt of dethroning the emperors at pleaſure, and even of overturning the empire itſelf. The number of auxiliaries was ſeldom inferior to that of the legionaries themſelves. The braveſt and moſt faithful bands among them were placed under the command of prefects and centurions, and ſeverely trained in the arts of Roman diſcipline; but the far greater part retained thoſe arms which they had uſed in their native country. By this inſtitution, each legion, to whom a certain number of auxiliaries was allotted, contained within itſelf every ſpecies of lighter troops, and of miſſile weapons; and

Rome. Faustina was supposed to be intimate. According to Mr Gibbon, however, Commodus was not, as has been represented, a tiger born with an insatiate thirst of human blood, and capable from his infancy of the most inhuman actions. Nature had formed him of a weak, rather than a wicked disposition. His simplicity and timidity

and was capable of encountering every nation with the advantages of its respective arms and discipline. Nor was the legion destitute of what, in modern language, would be styled a train of artillery. This consisted of 10 military engines of the largest size, and 56 smaller ones; but all of them, either in an oblique or horizontal manner, discharged stones and darts with irresistible violence.

The camp of a Roman legion presented the appearance of a fortified city. As soon as the space was marked out, the pioneers carefully levelled the ground, and removed every impediment that might interrupt its perfect regularity. Its form was an exact quadrangle; and it may be computed that a square of 700 yards was sufficient for the encampment of 20,000 Romans, though a similar number of modern troops would expose to the enemy a front of more than treble that extent. In the midst of the camp, the prætorium, or general's tent, arose above the others; and the cavalry, infantry, and auxiliaries, had each their respective stations appointed them. The streets were broad, and perfectly straight; and a vacant space of 200 feet was left on all sides between the tents and rampart. The rampart itself was 12 feet high, armed with a line of strong and intricate palisades, and defended by a ditch 12 feet deep and as much broad. This labour was performed by the legions themselves, to whom the use of the spade and the pick-ax was no less familiar than that of the sword or pilum. Whenever the trumpet gave the signal of departure, the camp was almost instantly broke up, and the troops fell into their ranks without delay or confusion. Besides their arms, which the soldiers scarcely considered as an incumbrance, they were laden with their kitchen-furniture, the instruments of fortification, and provisions for many days. Under this weight, which would oppress a modern soldier, they were taught to advance by a regular step, near 20 miles in six hours. On the appearance of an enemy, they threw aside their baggage, and, by easy and rapid evolutions, converted the column of march into an order of battle. The slingers and archers skirmished in the front; the auxiliaries formed the first line, and were seconded or sustained by the legions. The cavalry covered the flanks, and the military engines were placed in the rear.

The numbers of the Roman armies are not easily calculated with any tolerable accuracy. We may compute, however, that the legion, which consisted of 6831 Romans, might, with its attendant auxiliaries, amount to 12,500 men. The peace establishment of Adrian and his successors was composed of no fewer than 30 of these formidable brigades; and most probably formed an army of 370,000 men. Instead of being confined within the walls of fortified cities, which the Romans considered as the refuge of weakness or pusillanimity, the legions were encamped on the banks of the great rivers, and along the frontiers of the barbarians. Three legions were sufficient for Britain. The principal strength lay upon the Rhine and Danube, and consisted of 16 legions, disposed in the following proportions: two in the Lower, and three in the Upper Germany; one in Rhætia; one in Noricum; four in Pannonia; three in Mæsia; and two in Dacia. The defence of the Euphrates was intrusted to eight legions, six of whom were placed in Syria, and the other two in Cappadocia. With regard to Egypt, Africa, and Spain, as they were far removed from any important scene of war, a single legion maintained the domestic tranquillity of each of those great provinces. Italy was defended by the city cohorts and prætorian guards formerly mentioned. These differed nothing from the legions in their arms and institutions, except in a more splendid appearance, and a less rigid discipline.

The Roman navy, though sufficient for every useful purpose of government, never seemed adequate to the greatness of the empire. The policy of the emperors was directed only to preserve the peaceful dominion of the Mediterranean sea, which was included within their dominions, and to protect the commerce of their subjects. Two permanent fleets were stationed by Augustus, one at Ravenna on the Adriatic, and the other at Misenum in the bay of Naples. A very considerable force was also stationed at Frejus in Provence; and the Euxine was guarded by 40 ships and 3000 soldiers. To all these we may add the fleet which preserved the communication between Gaul and Britain, and a great number of vessels constantly maintained on the Rhine and Danube to harass the enemy, or intercept the passage of the barbarians. The whole military establishment by sea and land amounted to about 450,000 men.

It was not, however, to this formidable power alone that the empire owed its greatness. The policy of the laws contributed as much to its support as the martial establishment itself. According to Mr Gibbon, though the provinces might occasionally suffer from the partial abuse of delegated authority, the general principle of government was wise, simple, and beneficent. Among these beneficent principles he reckons that of universal toleration; but to this there were several exceptions: for the British Druids were persecuted and destroyed by the Romans on account of their religion; the Egyptians and Jews were sometimes persecuted; and the Christians were frequently so, and that even under the very best emperors, Trajan and Marcus Aurelius. However, as a very general toleration of religious sentiments did take place under the heathen emperors of Rome, we must certainly look upon this as one of the causes of the prosperity of the empire.

Another thing which greatly contributed to the strength and prosperity of the empire, was the extending of the freedom of Rome to so many people. "The narrow policy (says Mr Gibbon) of preserving, without any foreign mixture, the pure blood of the ancient citizens, had checked the fortune and hastened the ruin of Athens and Sparta. During the most flourishing era of the Athenian commonwealth, the number of citizens decreased gradually from about 30,000 to 21,000. If, on the contrary, we study the growth of the Roman republic, we may

Rome. 53 Astrous ty of nucus.

timidity rendered him the slave of his attendants, who gradually corrupted his mind. His cruelty, which at first obeyed the dictates of others, degenerated into habit, and at length became the ruling passion of his soul." But, however this may be, it is certain that the actions of this emperor were flagitious almost beyond a

may discover, that notwithstanding the incessant demands of wars and colonies, the citizens, who, in the time of Servius Tullius, amounted to no more than 83,000, were multiplied, before the end of the social war, to the number of 463,000 men able to bear arms in the service of their country. When the allies of Rome claimed an equal share of honours and privileges, the senate preferred the chance of war to a concession; however, at last, all the Italian states, except the Samnites and Lucanians, were admitted into the bosom of the republic, and soon contributed to the ruin of public freedom. When the popular assemblies had been suppressed by the administration of the emperors, the conquerors were distinguished from the vanquished nations only as the first and most honourable order of subjects; and their increase, however rapid, was no longer exposed to the same dangers. Yet the princes who adopted the maxims of Augustus, guarded with the strictest care the dignity of the Roman name, and diffused the freedom of the city with a prudent liberality.

" Till the privileges of the Romans had been progressively extended to all the inhabitants of the empire, an important distinction was preserved between Italy and the provinces. The estates of the Italians were exempted from taxes, and their persons from the arbitrary jurisdiction of governors. From the foot of the Alps to the extremity of Calabria, all the natives of Italy were born citizens of Rome. The provinces of the empire were destitute of any public force or constitutional freedom. The free states and cities, which had embraced the cause of Rome, were insensibly sunk into real servitude. The public authority was everywhere engrossed by the ministers of the senate and of the emperors, and that authority was absolute. But the same salutary maxims of government which had secured the peace and obedience of Italy, were extended to the most distant conquests. A nation of Romans was gradually formed in the provinces, by the double expedient of introducing colonies, and of admitting the most faithful and deserving provincials to the freedom of Rome.

" So sensible were the Romans of the influence of language over national manners, that it was their most serious care to extend with the progress of their arms, the use of the Latin tongue. The eastern provinces, however, were less docile in this respect than the western ones; and this obvious difference made a distinction between the two portions of the empire, which became very remarkable when it began to decline. Nor was the influence of the Greek language and sentiments confined to the narrow limits of that once celebrated country. Their empire, by the progress of colonies and conquest, had been diffused from the Adriatic to the Euphrates and Nile. Asia was covered with Greek cities, and the long reign of the Macedonian kings had introduced a silent revolution into Syria and Egypt. In their pompous courts, those princes united the elegance of Athens with the luxury of the east; and the example of the court was imitated, at an humble distance, by the higher ranks of their subjects. Such was the general division of the Roman empire into the Latin and Greek languages; to which we may add a third distinction for the body of the natives in Syria, and especially in Egypt. The use of their ancient dialects, by secluding them from the commerce of mankind, checked the improvements of these barbarians. The slothful effeminacy of the former exposed them to the contempt, the fierce ferociousness of the latter excited the aversion, of the Roman conquerors. They seldom desired or deserved the freedom of the city; and it is remarked, that more than 200 years elapsed after the ruin of the Ptolemies, before a native Egyptian was admitted into the senate of Rome.

" The number of subjects who acknowledged the laws of Rome, of citizens, of provincials, and of slaves, cannot now be fixed with such accuracy as the importance of the object would deserve. We are informed, that when the emperor Claudius exercised the office of censor, he took an account of 6,945,000 Roman citizens; who, with the proportion of women and children, must have amounted to about 20,000,000 of souls. The multitude of subjects of an inferior rank was uncertain and fluctuating: but after weighing with attention every circumstance which could influence the balance, it seems probable that there existed, in the time of Claudius, about twice as many provincials as there were Roman citizens, of either sex, and of every age; and that the slaves were at least equal in number to the free inhabitants of the Roman world. The total amount of this imperfect calculation would rise to about 120 millions of persons; a degree of population which possibly exceeds that of modern Europe, and forms the most numerous society that has ever been united under the same system of government.

" Domestic peace and union were the natural consequences of the moderate and comprehensive policy embraced by the Romans. The vanquished nations, blended into one great people, relinquished the hope, nay even the wish, of resuming their independence, and scarcely considered their own existence as distinct from the existence of Rome. The established authority of the emperors pervaded, without an effort, the wide extent of their dominions, and was exercised with the same facility on the banks of the Thames, or of the Nile, as on those of the Tiber. The legions were destined to serve against the public enemy, and the civil magistrate seldom required the aid of a military force.

" It was scarcely possible that the eyes of contemporaries should discover in the public felicity the latent causes of decay and corruption. This long peace, and the uniform government of the Romans, introduced a slow and secret poison into the veins of the empire. The minds of men were gradually reduced to the same level; the fire of genius was extinguished, and even the military spirit evaporated. The natives of Europe were brave and robust. Spain, Gaul, Britain, and Illyricum, supplied the legions with excellent soldiers, and constituted the

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a parallel. Many very ſtrange inſtances of his cruelty are related by the ancients. He is ſaid to have cut aſunder a corpulent man whom he ſaw walking along the ſtreet; partly, to try his own ſtrength, in which he greatly excelled; and partly, as he himſelf owned, out of curioſity, to ſee his entrails drop out at once. He took pleaſure in cutting off the feet, and putting out the eyes, of ſuch as he met in his rambles through the city; telling the former, after he had thus maimed them, that now they belonged to the nation of *Monopodii*; and the latter, that they were now become *Luſcinii*, alluding to the word *luſcus*, "one-eyed." Some he murdered becauſe they were negligently dreſſed; others, becauſe they ſeemed to be trimmed with too much nicety. He pretended to great ſkill in ſurgery, eſpecially at letting blood: but ſometimes, inſtead of easing by that means thoſe whom he viſited, or who were prevailed upon to recur to him, he cut off, by way of diverſion, their ears and noſes. His lewdneſs and debaucheries were equally remarkable, and equally infamous. However, he is ſaid to have been exceedingly well ſkilled in archery, and to have performed incredible feats in that way. He excelled all men in ſtrength; and is ſaid to have run an elephant through with his ſpear, and to have killed in the amphitheatre 100 lions, one after another, and each of them at one blow. Forgetful of his dignity, he entered the lists with the common gladiators, and came off conqueror 735 times; whence he often ſubſcribed himſelf in his letters, *the conqueror of* 1000 *gladiators*.

364 He concludes a peace with the barbarians.

The public tranſactions of this reign were but very few. Soon after his father's death, Commodus concluded a peace with the Marcommanni, Quadi, &c. on the following conditions. 1. That they ſhould not ſettle within five miles of the Danube. 2. That they ſhould deliver up their arms, and ſupply the Romans with a certain number of troops when required. 3. That they ſhould aſſemble but once a month, in one place only, and that in preſence of a Roman centurion. 4. That they ſhould not make war upon the Jazyges, Buri, or Vandals, without the conſent of the people of Rome. On the other hand, Commodus promiſed to abandon, which accordingly he did, all the caſtles and fortreſſes held by the Romans in their country, excepting ſuch as were within five miles of the Danube. With the other German nations, whom his father had almoſt entirely reduced, he concluded a very dishonourable peace; nay, of ſome he purchaſed it with large ſums of money.

Soon after the return of the emperor to Rome, his ſiſter Lucilla, perceiving that he was univerſally abhorred on account of his cruelty, formed a conſpiracy againſt his life. Among the conſpirators were many ſenators of diſtinction. It was agreed among them that they ſhould fall upon the emperor while he was going to the amphitheatre through a narrow and dark paſſage; and that Claudius Pompeianus, to whom Lucilla had betrothed her daughter, ſhould give the firſt blow. But he, inſtead of ſtriking at once, ſhowed him the naked dagger, and cried out, "This preſent the ſenate ſends you:" ſo that the guards had time to reſcue the emperor, and to ſeize the conſpirators, who were ſoon after put to death. The emperor baniſhed his ſiſter to the iſland of Capreæ, where he ſoon after cauſed her to be privately murdered.

The favourite miniſter of Commodus was one Perennis;

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real ſtrength of the monarchy. Their perſonal valour remained; but they no longer poſſeſſed that public courage which is nouriſhed by the love of independence, the ſenſe of national honour, the preſence of danger, and the habit of command. They received laws and governors from the will of their ſovereign, and truſted for their defence to a mercenary army. The poſterity of their boldeſt leaders were contented with the rank of citizens and ſubjects. The moſt aſpiring ſpirits reſorted to the court or ſtandard of the emperors; and the deſerted provinces, deprived of political ſtrength or union, inſenſibly ſunk into the languid indifference of private life.

"The love of letters, almoſt inſeparable from peace and refinement, was faſhionable among the ſubjects of Adrian and the Antonines; who were themſelves men of learning and curioſity. It was diffuſed over the whole extent of their empire; the moſt northern tribes of Britons had acquired a taſte for rhetoric; Homer as well as Virgil were tranſcribed and ſtudied on the banks of the Rhine and Danube; and the moſt liberal rewards ſought out the fainteſt glimmerings of literary merit. The ſciences of phyſic and aſtronomy were cultivated with ſome degree of reputation; but, if we except Lucian, an age of indolence paſſed away without producing a ſingle writer of genius who deſerved the attention of poſterity. The authority of Plato, of Ariſtotle, of Zeno, and Epicurus, ſtill reigned in the ſchools; and their ſyſtems, tranſmitted with blind deference from one generation of diſciples to another, precluded every generous attempt to correct the errors or enlarge the bounds of the human mind. The beauties of the poets and orators, inſtead of kindling a fire like their own, produced only ſervile imitations; or, if any ventured to deviate from theſe models, they deviated at the ſame time from good ſenſe and propriety. The provincials of Rome, trained by an uniform artificial education, were engaged in a very unequal competition with thoſe bold ancients, who, by expreſſing their genuine feelings in their native tongue, had already occupied every place of honour. The name of *poet* was almoſt forgotten; that of *orator* was uſurped by the ſophiſts. A cloud of critics, of compilers, of commentators, darkened the face of learning, and the decline of genius was ſoon followed by the corruption of taſte.

"Longinus obſerves and laments the degeneracy of his contemporaries, which debaſed their ſentiments, enervated their courage, and depreſſed their talents; comparing them to pigmies, whoſe ſtature has been diminiſhed by conſtant preſſure on their limbs. This diminutive ſtature of mankind was conſtantly ſinking below the old ſtandard, and the Roman world was indeed peopled by a race of pigmies; when the fierce giants of the north broke in and mended the puny breed. They reſtored a manly freedom; and, after the revolution of ten centuries, freedom became the happy parent of taſte and ſcience."

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rennis; who in oppreſſion and cruelty ſeems to have been nothing inferior to thoſe of the moſt tyrannical emperors. During the firſt part of the reign of Commodus, he ruled with an abſolute ſway; but at laſt was torn in pieces by the enraged ſoldiery, whom he had offended by his too great ſeverity. He was ſucceeded in his place by a freedman named *Cleander;* for the emperor himſelf was ſo much taken up with his pleaſures, that he could not beſtow even a moment on the affairs of ſtate. The new miniſter abuſed his power in a more flagrant manner than even his predeceſſor had done. By him all things were openly ſet to ſale; offices, provinces, public revenues, juſtice, and the lives of men both innocent and guilty. The miniſter, who ruled the emperor without controul, infuſed ſuch terrors into his timorous mind, that he changed the captains of his guards almoſt continually. One Niger enjoyed the dignity only ſix hours; another only five days; and ſeveral others a ſtill ſhorter ſpace. Moſt of thoſe officers loſt their lives along with their employments; being accuſed of treaſon by Cleander, who continually ſolicited, and at laſt obtained, that important poſt for himſelf.

365 Revolt of Maternus

In the year 187 happened a remarkable revolt. One Maternus, a common ſoldier, having fled from his colours, and being joined by many others guilty of the ſame crime, grew in a ſhort time ſo powerful, the banditti flocking to him from all parts, that he over-ran and plundered great part of Gaul and Spain; ſtormed the ſtrongeſt cities; and ſtruck the emperor and people of Rome with ſuch terror, that troops were raiſed, and armies diſpatched againſt him. Peſcennius Niger was ſent to make head againſt him in Gaul, where he became very intimate with Severus, who was then governor of Lyons, and who wrote a letter to the emperor, commending the prudent and gallant behaviour of Niger in purſuing the rebels. Maternus, finding himſelf reduced to great ſtraits, divided his men into ſeveral ſmall bands, and marched privately with them by different ways into Italy; having nothing leſs in view than to murder the emperor during the ſolemnity which was kept annually in honour of the mother of the gods, and on his death to ſeize upon the empire for himſelf. They all arrived at Rome undiſcovered; and ſeveral of his men had already mixed themſelves with the emperor's guards, when others of his own party betrayed him. He was immediately ſeized and executed; and his death put an end to the diſturbances which ſome of his followers had begun to raiſe in other provinces. In the ſame year broke out the moſt dreadful plague, ſays Dio Caſſius, that had been known. It laſted two or three years; and raged with the greateſt violence at Rome, where it frequently carried off 2000 perſons a-day. The following year a dreadful fire, which conſumed a great part of the city, was kindled by lightning; and at the ſame time the people were afflicted with a dreadful famine, occaſioned, according to ſome authors, by Cleander, who, having now in view nothing leſs than the ſovereignty itſelf, bought up underhand all the corn, in order to raiſe the price of it, and gain the affections of the ſoldiery and people by diſtributing it among them. Others tell us, however, that Papirius Dionyſius, whoſe province it was to ſupply the city with proviſions, contributed towards the famine, in order to make the people riſe againſt Cleander. Be this as it will, the populace aſcribed all their calamities to this hated miniſter; and one day, while the people were celebrating the Circaſſian games, a troop of children, having at their head a young woman of an extraordinary ſtature and fierce aſpect, entering the circus, began to utter aloud many bitter invectives and dreadful curſes againſt Cleander; which being for ſome time anſwered by the people with other invectives and curſes, the whole multitude roſe all of a ſudden, and flew to the place where Cleander at that time reſided with the emperor. There, renewing their invectives, they demanded the head of the miniſter who had been the occaſion of ſo many calamities. Hereupon Cleander ordered the prætorian cavalry to charge the multitude; which they did accordingly, driving them with great ſlaughter into the city. But the populace diſcharging ſhowers of ſtones, bricks, and tiles, from the tops of the houſes and from the windows, and the city-guards at the ſame time taking part with the people, the prætorian horſe were ſoon obliged to ſave themſelves by flight: nor was the ſlaughter ended till the emperor, appriſed of the tumult, cauſed the head of Cleander to be ſtruck off and thrown out to the enraged populace. The emperor himſelf did not long ſurvive Cleander; being cut off by a conſpiracy of Marcia his favourite concubine, Lætus captain of the guards, and Eclectus his chamberlain.

367 Commodus murdered.

No ſooner was the death of Commodus known, than the ſenate aſſembled, and declared him a public enemy, loading him with curſes, ordering his ſtatues to be broken to pieces, and his name to be raſed out of all public inſcriptions; and demanded his body, that it might be dragged through the ſtreets, and thrown into the Tiber. But Helvius Pertinax, whom the conſpirators had previouſly deſigned for the empire, and who had already aſſumed it, prevented ſuch an outrage, by letting the ſenators know that Commodus was already buried. This extraordinary perſonage had paſſed through many changes of fortune. He was originally the ſon of an enfranchiſed ſlave, called *Ælius*, who only gave him ſo much learning as to qualify him for keeping a little ſhop in the city. He then became a ſchoolmaſter, afterwards ſtudied the law, and after that became a ſoldier; in which ſtation his behaviour was ſuch as cauſed him to be ſoon made captain of a cohort againſt the Parthians. Being thus introduced to arms he went through the uſual gradation of military preferment in Britain and Mœſia, until he became the commander of a legion under Aurelius. In this ſtation he performed ſuch excellent ſervices againſt the barbarians, that he was made conſul, and ſucceſſively governor of Dacia, Syria, and Aſia Minor. In the reign of Commodus he was baniſhed; but ſoon after recalled, and ſent into Britain to reform the abuſes in the army. In this employment his uſual extraordinary fortune attended him: he was oppoſed by a ſedition among the legions, and left for dead among many others that were ſlain. However, he got over this danger, ſeverely puniſhed the mutineers, and eſtabliſhed regularity and diſcipline among the troops he was ſent to command. From thence he was removed into Africa, where the ſedition of the ſoldiers had like to have been as fatal to him as in his former government. Removing from Africa, and fatigued with an active life, he betook himſelf to retirement: but Commodus,

368 Pertinax raiſed to the empire.

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willing to keep him still in view, made him prefect of the city; which employment he filled, when the conspirators fixed upon him as the properest person to succeed to the empire.

His being advanced by Commodus only served to increase his fears of falling as an object of his suspicions; when therefore the conspirators repaired to his house by night, he considered their arrival as a command from the emperor for his death. Upon Lætus entering his apartment, Pertinax, without any show of fear, cried out, That for many days he had expected to end his life in that manner, wondering that the emperor had deferred it so long. However, he was not a little surprised when informed of the real cause of their visit; and being strongly urged to accept of the empire, he at last complied with their offer.

369 His excellent reign.

Being carried to the camp, Pertinax was proclaimed emperor: soon after the citizens and senate consented; the joy for the election of a new sovereign being scarce equal to that for the death of the former. The provinces quickly followed the example of Rome; so that he began his reign with universal satisfaction to the whole empire, in the 68th year of his age.

Nothing could exceed the wisdom and justice of this monarch's reign the short time it continued. He punished all those who had served to corrupt the late emperor, and disposed of his ill-got possessions to public uses. He attempted to restrain the licentiousness of the prætorian bands, and put a stop to the injuries and insolences they committed against the people. He sold most of the buffoons and jesters of Commodus as slaves; particularly such as had obscene names. He continually frequented the senate as often as it sat, and never refused an audience even to the meanest of the people. His success in foreign affairs was equal to his internal policy. When the barbarous nations abroad had certain intelligence that he was emperor, they immediately laid down their arms, well knowing the opposition they were to expect from so experienced a commander. His great error was avarice; and that, in some measure, served to hasten his ruin.

The prætorian soldiers, whose manners he had attempted to reform, having been long corrupted by the indulgence and profusion of their former monarchs, began to hate him for the parsimony and discipline he had introduced among them. They therefore resolved to dethrone him; and for that purpose declared Maternus, an ancient senator, emperor, and endeavoured to carry him to the camp to proclaim him. Maternus, however, was too just to the merits of Pertinax, and too faithful a subject, to concur in their seditious designs; wherefore escaping out of their hands, he fled, first to the emperor, and then out of the city. They then nominated one Falco, another senator; whom the senate would have ordered for execution, had not Pertinax interposed, who declared that during his reign no senator should suffer death.

370 Murdered by the prætorian soldiers.

The prætorian soldiers then resolved unanimously not to use any secret conspiracies, or private contrivances, but boldly to seize upon the emperor and empire at once. They accordingly, in a tumultuous manner, marched through the streets of Rome, and entered the palace without opposition. Such was the terror at their approach, that the greatest part of the emperor's attendants forsook him; while those who remained earnestly intreated him to fly to the body of the people, and interest them in his defence. However, he rejected their advice; declaring, that it was unworthy his imperial dignity, and all his past actions, to save himself by flight. Having thus resolved to face the rebels, he had some hopes that his presence alone would terrify and confound them. But what could his former virtues, or the dignity of command, avail against a tumultuous rabble, nursed up in vice, and ministers of former tyranny? One Thausius, a Tungrian, struck him with his lance on the breast, crying out, "The soldiers send you this." Pertinax finding all was over, covered his head with his robe, and sunk down, mangled with a multitude of wounds, which he received from various assassins. Eclectus, and some more of his attendants, who attempted to defend him, were also slain: his son and daughter only escaped, who happened to be lodged out of the palace. Thus, after a reign of three months, Pertinax fell a sacrifice to the licentious fury of the prætorian army. From the number of his adventures, he was called the *tennis-ball of Fortune*; and certainly no man ever experienced such a variety of situations with so blameless a character.

371 The empire exposed to sale, and bought by Didius Julianus.

The soldiers having committed this outrage, retired with great precipitation; and getting out of the city to the rest of their companions, expeditiously fortified their camp, expecting to be attacked by the citizens. Two days having passed without any attempt of this kind, they became more insolent; and willing to make use of the power of which they found themselves possessed, made proclamation, that they would sell the empire to whoever would purchase it at the highest price. In consequence of this proclamation, so odious and unjust, only two bidders were found; namely, Sulpicianus and Didius Julianus: The former, a consular person, præfect of the city, and son-in-law to the late emperor Pertinax; the latter, a consular person likewise, a great lawyer, and the wealthiest man in the city. He was sitting with some friends at dinner when the proclamation was published; and being charmed with the prospect of unbounded power, immediately rose from table and hastened to the camp. Sulpicianus was got there before him; but as he had rather promises than treasure to bestow, the offers of Didius, who produced immense sums of ready money, prevailed. He was received into the camp by a ladder, and they instantly swore to obey him as emperor. From the camp he was attended by his new electors into the city; the whole body of his guards, which consisted of 10,000 men, ranged around him in such order as if they had prepared for battle, and not for a peaceful ceremony. The citizens, however, refused to confirm his election; but rather cursed him as he passed. Upon being conducted to the senate-house, he addressed the few senators that were present in a very laconic speech: "Fathers, you want an emperor; and I am the fittest person you can choose." But even this, short as it seems, was unnecessary, since the senate had it not in their power to refuse their approbation. His speech being backed by the army, to whom he had given about a million of our money, succeeded. The choice of the soldiers was confirmed by the senate, and Didius was acknowledged emperor, now in the 57th year of his age.

It should seem by this weak monarch's conduct when seated

ſeated on the throne, that he thought the government of an empire rather a pleaſure than a toil. Inſtead of attempting to gain the hearts of his ſubjects, he gave himſelf up to eaſe and inactivity, utterly regardleſs of the duties of his ſtation. He was mild and gentle indeed; neither injuring any nor expecting to be injured. But that avarice, by which he became opulent, ſtill followed him in his exaltation; ſo that the very ſoldiers who elected him, ſoon began to deteſt him for thoſe qualities, ſo very oppoſite to a military character. The people alſo, againſt whoſe conſent he was choſen, were no leſs inimical. Whenever he iſſued from his palace, they openly poured forth their imprecations againſt him; crying out, that he was a thief, and had ſtolen the empire. Didius, however, in the true ſpirit of a trader, patiently bore it all; ſometimes beckoning them with ſmiles to approach him, and teſtifying his regard by every kind of ſubmiſſion.

While Didius was thus contemptuouſly treated at home, two valiant generals, in different parts of the empire, diſclaimed his authority, and boldly reſolved to attempt the throne for themſelves. Theſe were, Peſcennius Niger, governor of Syria; and Septimius Severus, commander of the German legions. Niger was beloved by the people for his clemency and valour; and the report of his propoſing Pertinax for his model, and reſolving to revenge his death, gained him univerſal eſteem among the people. Being thus apprized of their inclinations, he eaſily induced his army in Syria to proclaim him emperor; and his title was, ſhortly after, acknowledged by all the kings and potentates in Aſia, who ſent their ambaſſadors to him as their lawful prince. The pleaſure of being thus treated as a monarch, in ſome meaſure retarded his endeavours to ſecure his title. Entirely ſatisfied with the homage of thoſe about him, he neglected the opportunities of ſuppreſſing his rivals; and gave himſelf up to luxury and feaſting at Antioch. The conduct of Severus, an African by birth, was very different. Being proclaimed by his army, he began by promiſing to revenge the death of Pertinax, and took upon him his name. He next ſecured the fidelity of all the ſtrong places in his province; and then reſolved, with the utmoſt expedition, to march with his whole force directly to Rome.

In the mean time, Didius, who diſregarded the attempts of Niger, was greatly alarmed at thoſe of Severus. He firſt, with many ſolicitations, procured the ſenate to proclaim him a traitor. He then applied himſelf to make the neceſſary proviſions to oppoſe him, in which he found nothing but diſappointment. The cohorts that elected him were enervated by vice and luxury; the people deteſted his cauſe; and the cities of Italy had long been diſuſed to the arts of war. Some adviſed him to march forward, and meet Severus as he was croſſing the Alps; others were for ſending the generals upon that expedition. The unfortunate Didius, unequal to the taſk of empire, and quite confounded with the multiplicity of counſels, could take no other reſolution but that of awaiting his rival's coming at Rome. Accordingly, ſoon after being informed of his approach, he obtained the conſent of the ſenate to ſend his ambaſſadors, offering to make him a partner of the empire. But Severus rejected this offer, conſcious of his own ſtrength, and of the weakneſs of the propoſer. The ſenate ſoon appeared of the ſame ſentiments; and perceiving the timidity and weakneſs of their preſent maſter, began to abandon him, alleging, that he who could not defend the empire was not worthy to govern it. Didius vainly endeavoured to reduce them to their duty, firſt by intreaties, and then by threats; but theſe only ſerved to haſten his deſtruction. The ſenate being called together, as was formerly practiſed in the times of the commonwealth by the conſuls, they unanimouſly decreed, That Didius ſhould be deprived of the empire, and that Severus ſhould be proclaimed in his ſtead. They then commanded Didius to be ſlain; and ſent meſſengers for this purpoſe to the palace, where they found him diſarmed, and weeping among a few friends that ſtill adhered to his intereſt. When the executioners began to prepare for their fatal errand, he expoſtulated with them, demanding what crime he had committed? He could not be perſuaded to think, that paying his money, and receiving an empire in exchange, deſerved ſo ſevere a puniſhment. The executioners, however, were neither able nor willing to enter into the merits of the cauſe; they preſently led him into the ſecret baths of the palace, and obliging him to ſtretch his neck forwards, after the manner of condemned criminals, ſtruck off his head, and placed it up in thoſe courts where he had formerly pleaded with great ſucceſs.

374 Severus declared emperor.

The ſenate having thus diſpatched Didius, ſent ambaſſadors to Severus, yielding him obedience, granting him the enſigns and the uſual titles of empire, and informing him of the death of Didius. Severus, who was now about 47 years of age, received them with all proper reſpect; and entertaining them honourably continued his march towards Rome. As he came near the city, his firſt exertion of power was, to have all the prætorian ſoldiers who had lately ſold the empire come forth unarmed to meet him. These, though ſenſible of their danger, had no other reſource left but compliance; and accordingly came forward with branches of laurel, as if to welcome his approach. Severus, however, ſoon ſhowed how little capable their preſent ſubmiſſion was to atone for their paſt offences: after upbraiding them, in a ſhort ſpeech, with all their crimes, he commanded them to be inſtantly ſtripped of their military habits, deprived of the name and honour of ſoldiers, and baniſhed 100 miles from Rome. He then entered the city in a military manner, took poſſeſſion of the palace, and promiſed the ſenate to conduct himſelf with clemency and juſtice. However, though he united great vigour with the moſt refined policy, yet his African cunning was conſidered as a particular defect in him. He is celebrated for his wit, learning, and prudence; but equally blamed for infidelity and cruelty. In ſhort, he ſeemed alike diſpoſed to the performance of the greateſt acts of virtue and the moſt bloody ſeverities. He began his command, by ſeizing all the children of ſuch as had employments or authority in the eaſt, and detained them as pledges for their fathers loyalty. He next ſupplied the city with corn; and then with all poſſible expedition marched againſt Niger, who was ſtill conſidered and honoured as emperor of the eaſt.

374 Niger defeated and killed.

One of the chief obſtacles to his march was, the leaving behind him Clodius Albinus, commander of the legions in Britain, whom he by all means wiſhed to ſecure in his intereſts. For this end, he endeavoured to

prevail upon him, by giving him hopes of succeeding to the empire; insinuating, that he himself was declining, and his children were as yet but infants. To deceive him still farther, he wrote in the same style to the senate, gave him the title of *Cæsar*, and ordered money to be coined with his image. These artifices serving to lull Albinus into false security, Severus marched against Niger with all his forces. After some undecisive conflicts, the last great battle that was fought between these extraordinary men was upon the plains of Issus, on the very spot where Alexander had formerly conquered Darius. Besides the two great armies drawn up on the plain, the neighbouring mountains were covered with infinite numbers of people, who were merely led by curiosity to become spectators of an engagement that was to determine the empire of the world. Severus was conqueror; and Niger's head being struck off by some soldiers of the conquering army, was insultingly carried through the camp on the point of a lance.

This victory secured Severus in the possession of the throne. However, the Parthians, Persians, and some other neighbouring nations, took up arms, under a pretence of vindicating Niger's cause. The emperor marched against them in person, had many engagements with them, and obtained such signal victories over them, as enlarged the empire, and established peace in the east.

375 Albinus defeated and destroyed.

Niger being no more, Severus now turned his views against Albinus, whom he resolved by every means to destroy. For this purpose he sent assassins into Britain, under a pretence of bringing him letters, but in reality to dispatch him. Albinus being apprised of their designs, prevented their attempt by recurring to open force and proclaiming himself emperor. Nor was he without a powerful army to support his pretensions; of which Severus being sensible, bent his whole force to oppose him. From the east he continued his course across the straits of Byzantium, into the most western parts of Europe, without intermission. Albinus being informed of his approach, went over to meet him with his forces into Gaul; so that the campaign on both sides was carried on with great vigour. Fortune seemed for a while variable; but at last a decisive engagement came on, which was one of the most desperate recorded in the Roman history. It lasted from morning till night, without any seeming advantage on either side; at length the troops of Severus began to fly, and he himself happening to fall from his horse, the army of Albinus cried out, Victory. But the engagement was soon renewed with vigour by Lætus, one of Severus's commanders, who came up with a body of reserve, designing to destroy both parties and make himself emperor. This attempt, though designed against both, turned out entirely to the advantage of Severus. He therefore again charged with such fury and exactness, that he soon plucked the victory from those who but a short time before seemed conquerors; and pursuing them into the city of Lyons, took Albinus prisoner, and cut off his head; treating his dead body with insults that could only flow from a mean and revengeful temper. All the senators who were slain in battle he ordered to be quartered, and such as were taken alive were immediately executed.

Having thus secured himself in possession of the empire, upon his return to Rome he loaded his soldiers with rewards and honours; giving them such privileges as strengthened his own power, while they destroyed that of the state. For the soldiers, who had hitherto showed the strongest inclination to an abuse of power, were now made arbiters of the fate of emperors; and we shall henceforward behold them setting them up, and dethroning them, at pleasure.

Being thus secure of his army, he resolved to give way to his natural turn for conquest, and to oppose his arms against the Parthians, who were then invading the frontiers of the empire. Having therefore previously given the government of domestic policy to one Plautianus, a particular favourite of his, to whose daughter he married his son Caracalla, he set out for the east, and prosecuted the war with his usual expedition and success. He forced submission from the king of Armenia, destroyed several cities in Arabia Felix, landed on the Parthian coasts, took and plundered the famous city Ctesiphon, marched back through Palestine and Egypt, and at length returned to Rome in triumph.

During this interval, Plautianus, who was left to direct the affairs of Rome, began to think of aspiring to the empire himself. Upon the emperor's return, he employed a tribune of the prætorian cohorts, of which he was the commander, to assassinate him, as likewise his son Caracalla. The tribune seemed cheerfully to undertake this dangerous office; but instead of going through with it, informed Severus of his favourite's treachery. He at first received it as an improbable story, and as the artifice of some one who envied his favourite's fortune. However, he was at last persuaded to permit the tribune to conduct Plautianus to the emperor's apartments. With this intent, the tribune went and amused him with a pretended account of his killing the emperor and his son, desiring him, if he thought it fit to see them dead, to come with him to the palace. As Plautianus ardently desired their deaths, he readily gave credit to this relation; and following the tribune, he was conducted at midnight into the innermost recesses of the palace. But what must have been his disappointment, when, instead of finding the emperor lying dead, as he expected, he beheld the room lighted up with torches, and Severus, surrounded by his friends, prepared in array to receive him. Being asked by the emperor, with a stern countenance, what had brought him there at that unseasonable time? he was at first utterly confounded; wherefore, not knowing what excuse to make, he ingenuously confessed the whole, intreating forgiveness for what he had intended. The emperor seemed in the beginning inclined to pardon; but Caracalla his son, who from the earliest age showed a disposition to cruelty, spurned him away in the midst of his supplications, and with his sword ran him through the body.

Severus having escaped this danger, spent a considerable time in visiting some cities in Italy, permitting none of his officers to sell places of trust or dignity, and distributing justice with the strictest impartiality. He took such an exact order in managing his exchequer, that, notwithstanding his great expences, he left more money behind him than any of his predecessors. His armies also were kept upon the most respectable footing; so that he feared no invasion. Being equally attentive to the preservation of all parts of the empire, he resolved to make his last expedition into Britain, where

where the Romans were in danger of being deſtroyed, or compelled to fly the province. Wherefore, after appointing his two ſons Caracalla and Geta joint ſucceſſors in the empire, and taking them with him, he landed in Britain, to the great terror of ſuch as had drawn down his reſentment. Upon his progreſs into the country, he left his ſon Geta in the ſouthern part of the province, which had continued in obedience, and marched with his ſon Caracalla againſt the Caledonians. In this expedition, his army ſuffered prodigious hardſhips in purſuing the enemy; they were obliged to hew their way through intricate foreſts, to drain extenſive marſhes, and form bridges over rapid rivers; ſo that he loſt 50,000 men by fatigue and ſickneſs. However, he ſupported all theſe inconveniences with the greateſt bravery; and is ſaid to have proſecuted his ſucceſſes with ſuch vigour, that he compelled the enemy to ſue for peace; which they obtained, not without the ſurrender of a conſiderable part of their country. We muſt here obſerve, however, that the Picts and Caledonians are ſo often confounded together by hiſtorians, that many miſtakes have thence ariſen concerning the progreſs and conqueſts of the Romans in the north of Britain. But from the boundary formed by the famous wall of Severus (ſee *Severus's Wall*), we muſt conclude, that no part of Caledonia, properly ſo called, had been either on this or any other occaſion ceded to him; and there is reaſon to believe, that he rather received checks from the people of that territory, than was ever able to make any conſiderable impreſſion upon them. Be this, however, as it may, after having made peace, and built his wall, he retired to York; where, partly through age and fatigue, and partly through grief at the irreclaimable life of Caracalla, he found himſelf daily declining, having already loſt the uſe of his feet. To add to the diſtreſs of his ſituation, he was informed that the ſoldiers had revolted, and declared his ſon emperor. In this exigence, he ſeemed once more to recal his natural vigour; he got himſelf immediately put into his litter, and commanded the new emperor, with the tribunes and centurions, to be brought before him. Though all were willing to court the favour of the young emperor, ſuch was the authority of Severus, that none dared to diſobey. They appeared before him confounded and trembling, and implored pardon upon their knees. Upon which, putting his hand to his head, he cried out, "Know, that it is the head that governs, and not the feet." However, ſoon perceiving his diſorder to increaſe, and knowing that he could not outlive it, he called for poiſon; which being refuſed him, he loaded his ſtomach with food; which not being able to digeſt, it ſoon brought him to his end, in the 56th year of his age, after an active though cruel reign of about 18 years.

Caracalla and Geta being acknowledged as emperors by the army, began to ſhow a mutual hatred to each other even before their arrival at Rome. Their only agreement was, in reſolving to deify Severus their father; but ſoon after, each ſought to attach the ſenate and army to his own particular intereſt. They were of very oppoſite diſpoſitions: Caracalla was fierce and cruel to an extreme degree; Geta was mild and merciful; ſo that the city ſoon found the dangerous effects of being governed by two princes of equal power and contrary inclinations.

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379 Geta murdered by Caracalla.

But this oppoſition was of no long continuance; for Caracalla being reſolved to govern alone, furiouſly entered Geta's apartment, and, followed by ruffians, ſlew him in his mother's arms. Having committed this deteſtable murder, he iſſued with great haſte from the palace, crying out, That his brother would have ſlain him; and that he was obliged, in ſelf-defence, to retaliate the intended injury. He then took refuge among the prætorian cohorts, and in a pathetic tone began to implore their aſſiſtance, ſtill making the ſame excuſe for his conduct. To this he added a much more prevailing argument, promiſing to beſtow upon them the largeſſes uſually given upon the election of new emperors, and diſtributing among them almoſt all the treaſures which had been amaſſed by his father. By ſuch perſuaſives the ſoldiers did not heſitate to proclaim him ſole emperor, and to ſtigmatize the memory of his brother Geta as a traitor and an enemy to the commonwealth. The ſenators were ſoon after induced, either through favour or fear, to approve what had been done by the army: Caracalla wept for the death of his brother whom he had ſlain; and, to carry his hypocriſy to the utmoſt extreme, ordered him to be adored as a god.

380 Who proves a moſt bloody tyrant.

Being now emperor, he went on to mark his courſe with blood. Whatever was done by Domitian or Nero fell ſhort of this monſter's barbarities. Lætus, who firſt adviſed him to murder his brother, was the firſt who fell a ſacrifice to his jealouſy. His own wife Plautina followed. Papinian, the renowned civilian, was beheaded for refuſing to write in vindication of his cruelty; anſwering the emperor's requeſt, by obſerving, That it was much eaſier to commit a parricide than to defend it. He commanded all governors to be ſlain that his brother had appointed; and deſtroyed not leſs than 2000 perſons who had adhered to his party. Whole nights were ſpent in the execution of his bloody decrees; and the dead bodies of people of all ranks were carried out of the city in carts, where they were burnt in heaps, without any of the ceremonies of a funeral. Upon a certain occaſion, he ordered his ſoldiers to ſet upon a crowded audience in the theatre, only for diſcountenancing a charioteer whom he happened to favour. Perceiving himſelf hated by the people, he publicly ſaid, that he could inſure his own ſafety though not their love; ſo that he neither valued their reproaches nor feared their hatred.

381 His extravagant folly, cruelty, and treachery.

This ſafety which he ſo much built upon was placed in the protection of his ſoldiers. He had exhauſted the treaſury, drained the provinces, and committed a thouſand acts of rapacity, merely to keep them ſtedfaſt in his intereſts; and being diſpoſed to truſt himſelf with them particularly, he reſolved to lead them upon a viſit through all the provinces of the empire. He firſt went into Germany; where, to oblige the natives, he dreſſed himſelf in the habit of their country. From thence he travelled into Macedonia, where he pretended to be a great admirer of Alexander the Great; and among other extravagancies cauſed a ſtatue of that monarch to be made with two faces; one of which reſembled Alexander and the other himſelf. He was ſo corrupted by flattery, that he called himſelf *Alexander*; walked as he was told that monarch had walked; and, like him, bent his head to one ſhoulder. Shortly after, arriving at Leſſer Aſia and the ruins of Troy, as he

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was viewing the tomb of Achilles, he took it into his head to resemble that hero; and one of his freedmen happening to die at that time, he used the same ceremonies that were performed at the tomb of Patroclus. Passing thence into Egypt, he massacred in the most terrible manner the inhabitants of Alexandria, on account of the satires they composed on him, as is related under the article ALEXANDRIA.

Going from thence into Syria, he invited Artabanus king of Parthia to a conference; desiring his daughter in marriage, and promising him the most honourable protection. In consequence of this, that king met him on a spacious plain, unarmed, and only attended with a vast concourse of his nobles. This was what Caracalla desired. Regardless of his promise, or the law of nations, he instantly surrounded him with armed troops, let in wild beasts among his attendants, and made a most terrible slaughter among them; Artabanus himself escaping with the utmost difficulty. For this vile treachery he obtained from the senate the surname of *Parthicus*.

382 Marries his father's wife.

Upon his return towards Rome, it would seem as if his vices were inexhaustible; for having been guilty of parricide, he now resolved to marry the mother of Geta whom he had slain. It happened that one day seeing her drop her veil, which discovered her naked bosom, which was extremely beautiful, he told her, that he would possess these charms he beheld, if it were lawful. To this unnatural request she hesitated not to answer, that he might enjoy all things who possessed all. Whereupon, setting aside all duty and respect to his deceased father, he celebrated his nuptials with her in public, totally disregarding the censures and the sarcasms of mankind.

However, though he disregarded shame, he was not insensible to fear. He was ever uneasy in the consciousness of being universally hated; and was continually consulting astrologers concerning what death he should die. Among others, he sent one of his confidants, named *Maternianus*, with orders to consult all the astrologers in the city concerning his end. Maternianus considered this as a proper time to get rid of Macrinus, the emperor's principal commander in Mesopotamia; a man who was daily supplanting him in his master's favour. He therefore informed him by letter, as if from the astrologers, that Macrinus had a design against his life; and they consequently advised him to put the conspirator to death. This letter was sent sealed, and made up, amongst many others, to be conveyed with the greater secrecy, and delivered to the emperor as he was preparing for a chariot-race. However, as it never was his custom to interrupt his pleasures for his business, he gave the packet to Macrinus to read over, and to inform him of the contents when more at leisure. In perusing these letters, when Macrinus came to that which regarded himself, he was unable to contain his surprise and terror. His first care was, to reserve the letter in question to himself, and to acquaint the emperor only with the substance of the rest. He then set about the most probable means of compassing his death, by which alone he could expect any safety. At length he determined to apply to one Martialis, a man of great strength, and a centurion of the guards, who hated the emperor from various motives; particularly for the death of a brother, whom Caracalla had ordered to be slain. Him therefore Macrinus exhorted to revenge his brother's death, by killing the tyrant, which he might easily effect, as being always so near his person. Martialis readily undertook the dangerous task; being willing to meet death himself, to be sure of obtain his desire of seeing the tyrant expire before him. 381 Is murdered.

Accordingly, as the emperor was riding out one day near a little city called *Carræ*, he happened to withdraw himself privately, upon a natural occasion, with only one page to hold his horse. This was the opportunity Martialis had so long and ardently desired; wherefore running to him as if he had been called, he stabbed the emperor in the back, so that he died immediately. Martialis unconcernedly returned to his troop; but retiring by insensible degrees, he endeavoured to secure himself by flight. But his companions soon missing him, and the page giving information of what had been done, he was pursued by the German horse and cut in pieces.

During the reign of this execrable tyrant, which continued six years, the empire was every day declining; the soldiers were entirely masters of every election; and as there were various armies in different parts, so there were as many interests all opposite to each other. Caracalla, by satisfying their most unreasonable appetites, destroyed all discipline among them, and all subordination in the state.

383 Macrinus succeeds.

The soldiers, now without an emperor, after a suspense of two days, fixed upon Macrinus, who took all possible methods to conceal his being privy to Caracalla's murder. The senate confirmed their choice shortly after; and likewise that of his son Diadumenus, whom he took as a partner in the empire. Macrinus was 53 years old when he entered upon the government of the empire. He was of obscure parentage; some say by birth a Moor, who by the mere rotation of office, being first made prefect of the prætorian bands, was now, by treason and accident, called to fill the throne. We are told but little of this emperor, except his engaging in a bloody though undecided battle with Artabanus king of Parthia, who came to take vengeance for the injury he had sustained in the late reign: however, this monarch finding his real enemy dead, was content to make peace, and returned into Parthia. Something is also told of the severity of this emperor's discipline; for to such a pitch of licentiousness was the Roman army now arrived, that the most severe punishments were unable to restrain the soldiers; and yet the most gentle inflictions were looked upon as severity. It was this rigorous discipline, together with the artifices of Mæsa, grandmother to Heliogabalus the natural son of Caracalla, that caused the emperor's ruin. 384 Heliogabalus succeeds.

Heliogabalus was priest of a temple dedicated to the Sun, in Emesa, a city of Phœnicia; and though but 14 years old was greatly loved by the army for the beauty of his person, and the memory of his father, whom they still considered as their greatest benefactor. This was soon perceived by the grandmother; who being very rich in gold and jewels, gave liberal presents among them, while they frequently repaired to the temple, both from the garrison in the city and the camp of Macrinus. This intercourse growing every day more frequent, the soldiers, being disgusted with the severities of their present emperor, began to think of placing Heliogabalus in his stead. Accordingly, sending for him

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to their camp, he was immediately proclaimed; and such were the hopes of his virtues, that all men began to affect his interests.

Macrinus, who at this time was pursuing his pleasures at Antioch, gave but little attention to the first report; only sending his lieutenant Julian, with some legions, to quell the insurrection. However, these, like the rest, soon declared for Heliogabalus, and slew their general. It was then that Macrinus found he had treated the rebellion too slightly; he therefore resolved, with his son, to march directly against the seditious legions, and force them to their duty. Both parties met on the confines of Syria: the battle was for some time furious and obstinate; but at last Macrinus was overthrown, and obliged to seek safety by flight. His principal aim was to get to Rome, where he knew his presence was desired; wherefore he travelled through the provinces of Asia Minor with the utmost expedition and privacy, but unfortunately fell sick at the city of Chalcedon. There those who were sent in pursuit, overtook and put him to death, together with his son Diadumenus, after a short reign of one year and two months.

385 Macrinus defeated, and put to death.

The senate and citizens of Rome being obliged to submit to the appointment of the army as usual, Heliogabalus ascended the throne at the age of 14. One at so early an age, invested with unlimited power, and surrounded with flatterers, could be expected to act only as they thought proper to direct. This young emperor was entirely led by them; and being sensible that it was in his power to indulge all his appetites, he studied only their gratification. As he is described by historians, he appears a monster of sensuality. His short life therefore is but a tissue of effeminacy, lust, and extravagance. He married, in the small space of four years, six wives, and divorced them all. He built a temple to the sun; and willing that his god should have a wife as well as himself, he married him to Pallas, and shortly after to the moon. His palace was a place of rendezvous for all the prostitutes of Rome, whom he frequently met naked, calling them *his fellow soldiers, and companions in the field*. He was so fond of the sex, that he carried his mother with him to the senate-house, and demanded that she should always be present when matters of importance were debated. He even went so far as to build a senate-house for women, with suitable orders, habits, and distinctions, of which his mother was made president. They met several times; all their debates turning upon the fashions of the day, and the different formalities to be used in giving and receiving visits. To these follies, he added great cruelty and boundless prodigality; so that he was heard to say, that such dishes as were cheaply obtained were scarce worth eating. His suppers therefore generally cost 6000 crowns, and often 60,000. He was always dressed in cloth of gold and purple, enriched with precious stones, and yet never wore the same habit twice. His palace, his chambers, and his beds, were all furnished of the richest stuffs, covered with gold and jewels. Whenever he took horse, all the way between his apartment and the place of mounting was covered with gold and silver dust strewn at his approach.

386 Heliogabalus worse than any of his predecessors.

These excesses were soon perceived by his grandmother Mæsa, whose intrigues had first raised him to the throne; so that she thought to lessen his power by dividing it. For this purpose, under a pretence of freeing him from the cares of public business, she persuaded him to adopt his cousin-german, Alexander, as his successor; and likewise to make him his partner in the consulship. Heliogabalus, having thus raised his cousin, had scarce given him his power, when he wished again to take it away; but the virtues of this young prince had so greatly endeared the people and the army to him, that the attempt had like to have been fatal to the tyrant himself. The prætorian soldiers mutinying, attempted to kill him as he was walking in his gardens; but he escaped, by hiding himself from their fury. However, upon returning to their camp, they continued the sedition; requiring that the emperor should remove such persons from about him as oppressed the subject, and contributed to contaminate him. They required also the being permitted to guard the young prince themselves, and that none of the emperor's favourites or familiars should ever be permitted to converse with him. Heliogabalus was reluctantly obliged to comply; and conscious of the danger he was in, made preparations for death, when it should arrive, in a manner truly whimsical and peculiar. He built a lofty tower with steps of gold and pearl, from whence to throw himself headlong in case of necessity. He also prepared cords of purple silk and gold to strangle himself with; he provided golden swords and daggers to stab himself with; and poison to be kept in boxes of emerald, in order to obtain what death he chose best. Thus fearing all things, but particularly suspicious of the designs of the senate, he banished them all out of the city: he next attempted to poison Alexander, and spread a report of his death; but perceiving the soldiers begin to mutiny, he immediately took him in his chariot to the camp, where he experienced a fresh mortification, by finding all the acclamations of the army directed only to his successor. This not a little raised his indignation, and excited his desire of revenge. He returned towards the city, threatening the most severe punishments against those who had displeased him, and meditating fresh cruelties. However, the soldiers were unwilling to give him time to put his designs in execution: they followed him directly to his palace, pursued him from apartment to apartment, and at last found him concealed in a privy; a situation very different from that in which he expected to die. Having dragged him from thence through the streets, with the most bitter invectives, and having dispatched him, they attempted once more to squeeze his pampered body into a privy; but not easily effecting this, they threw it into the Tiber, with heavy weights, that none might afterwards find or give it burial. This was the miserable and ignominious death of Heliogabalus, in the 18th year of his age, after a detestable reign of four years. His mother also was slain at the same time by the soldiers; as were also many of the opprobrious associates of his criminal pleasures.

387 Adopts Alexander, and takes him for his colleague.

388 Is murdered by the soldiers.

Alexander being, without opposition, declared emperor, the senate, in their usual method of adulation, were for conferring new titles upon him; but he modestly declined them all, alleging, that titles were only honourable when given to virtue, not to station. This outset was an happy omen of his future virtues; and few princes in history have been more commended by his contemporaries, or indeed more deserved commendation.

389 Virtues of Alexander.

Rome.

tion. To the most rigid justice he added the greatest humanity. He loved the good, and was a severe reprover of the lewd and infamous. His accomplishments were equal to his virtues. He was an excellent mathematician, geometrician, and musician; he was equally skilled in painting and sculpture; and in poetry few of his time could equal him. In short, such were his talents, and such the solidity of his judgment, that though but 16 years of age, he was considered as a wise old man.

The first part of his reign was spent in a reformation of the abuses of his predecessor. He restored the senators to their rank; nothing being undertaken without the most sage advisers, and most mature deliberation. Among the number of his advisers was his mother Mammæa; a woman eminent for her virtues and accomplishments, and who made use of her power as well to secure her son the affections of his subjects, as to procure them the most just administration. He was a rigid punisher of such magistrates as took bribes, saying, That it was not enough to deprive such of their places; for their trusts being great, their lives, in most cases, ought to pay for a breach of them. On the contrary, he thought he could never sufficiently reward such as had been remarkable for their justice and integrity, keeping a register of their names, and sometimes asking such of them as appeared modest and unwilling to approach him, why they were so backward in demanding their reward, and why they suffered him to be in their debt? His clemency extended even to the Christians, who had been punished in the former reigns with unrelenting barbarity. Upon a contest between them and a company of cooks and vintners, about a piece of public ground, which the one claimed as a place for public worship, and the other for exercising their respective trades, he decided the point by his rescript, in these words: "It is better that God be worshipped there in any manner, than that the place should be put to uses of drunkenness and debauchery."

390 Restores the affairs of the empire,

His abilities in war were not inferior to his assiduity in peace. The empire, which from the remissness and debauchery of the preceding reigns now began to be attacked on every side, wanted a person of vigour and conduct to defend it. Alexander faced the enemy wherever the invasion was most formidable, and for a short time deferred its ruin. His first expedition, in the tenth year of his reign, was against the Parthians and Persians, whom he opposed with a powerful army.—The Persians were routed in a decisive engagement with great slaughter; the cities of Ctesiphon and Babylon were once more taken, and the Roman empire was restored to its former limits. Upon his return to Antioch, his mother Mammæa sent for the famous Origen, to be instructed by him in the principles of Christianity; and after discoursing with him for some time upon the subject, dismissed him, with a proper safeguard, to his native city of Alexandria. About the same time that Alexander was victorious in the East, Furius Celsus, his general, obtained a signal victory over the Mauritanians in Africa. Varius Macrinus was successful in Germany, and Junius Palmatus returned with conquest from Armenia. However, the number of these victories only hastened the decline of the empire, which was wasted by the exertion of its own strength, and was now becoming little more than a splendid ruin.

About the 13th year of his reign, the Upper Germans, and other northern nations, began to pour down immense swarms of people upon the more southern parts of the empire. They passed the Rhine and the Danube with such fury, that all Italy was thrown into the most extreme consternation. The emperor, ever ready to expose himself for the safety of his people, made what levies he could, and went in person to stem the torrent; which he speedily effected. It was in the course of his successes against the enemy, that he was cut off by a mutiny among his soldiers. The legions encamped about Moguntia, having been abominably corrupted during the reign of Heliogabalus, and trained up in all kinds of rapine and disobedience, required the most strict command. Alexander could neither endure their tumultuary obedience, nor they his regular discipline. His own faults, and those of his mother Mammæa, were objected against him. They openly exclaimed, That they were governed by an avaricious woman, and a mean-spirited boy; and resolved upon electing an emperor capable of ruling alone. In this general revolt, Maximinus, an old and experienced commander, held frequent conferences with the soldiers, and enflamed the sedition. At length, being determined to dispatch their present emperor, they sent an executioner into his tent; who immediately struck off his head, and, shortly after, that of his mother. He died in the 29th year of his age, after a prosperous reign of thirteen years and nine days.

391 Is murdered.

392 Succeeded by Maximinus, a man of gigantic stature and extraordinary strength.

The tumults occasioned by the death of Alexander being appeased, Maximinus, who had been the chief promoter of the sedition, was chosen emperor. This extraordinary man, whose character deserves particular attention, was born of very obscure parentage, being the son of a poor herdsman of Thrace. In the beginning he followed his father's profession, and only exercised his personal courage against the robbers who infested the part of the country in which he lived. Soon after, his ambition increasing, he left his poor employment, and enlisted in the Roman army; where he soon became remarkable for his great strength, discipline, and courage. This gigantic man was no less than eight feet and a half high; he had a body and strength corresponding to his size, being not less remarkable for the magnitude than the symmetry of his person. His wife's bracelet usually served him for a thumb-ring; and his strength was so great, that he was able to draw a carriage which two oxen could not move. He could strike out an horse's teeth with a blow of his fist, and break its thigh with a kick. His diet was as extraordinary as the rest of his endowments; he generally eat 40 pounds weight of flesh every day, and drank six gallons of wine, without committing any debauch in either. With a frame so athletic, he was possessed of a mind undaunted in danger, and neither fearing nor regarding any man. The first time he was made known to the emperor Severus, was upon his celebrating games on the birth-day of his son Geta. Maximinus was then a rude countryman, and requested the emperor to be permitted to contend for the prizes which were distributed to the best runners, wrestlers, and boxers, of the army. Severus, unwilling to infringe the military discipline, would

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would not permit him at first to combat, except with slaves, against whom his strength appeared astonishing. He overcame 16 in running, one after the other: he then kept up with the emperor on horseback; and having fatigued him in the course, he was opposed to seven of the most active soldiers, and overcame them with the greatest ease. From that time he was particularly noticed, and taken into the emperor's body-guards, in which his assiduity and prompt obedience were particularly remarkable. In the reign of Caracalla, he was made a centurion, and distinguished himself in this station by his strict attention to the morals and discipline of those he commanded. When made a tribune, he still retained the hard simplicity of his life; eat as the meanest centinel; spent whole days in exercising his troops; and would now and then himself wrestle with eight or ten of the strongest men in the army, whom he threw with scarce any effort. Being thus become one of the most remarkable men in the empire, both for courage, discipline, and personal activity, he gave, shortly after, a very high instance of his unshaken fidelity: for when Macrinus was made emperor, he refused to serve under a prince that had betrayed his sovereign; and retired to Thrace, his native country, where he followed commerce, and purchased some lands, content with privacy rather than a guilty dependence. Upon the accession of Heliogabalus to the throne, this bold veteran once more returned to the army; but was, in the very beginning, disgusted at the base effeminacy of the emperor; who, hearing amazing instances of his strength, asked him, if he were equally capable in combats of another nature? This lewd demand was so little suitable to the temper of Maximinus, that he instantly left the court. Upon the death of Heliogabalus, he again returned to Rome, and was received with great kindness by Alexander, who particularly recommended him to the senate, and made him commander of the fourth legion, which consisted of new-raised soldiers. Maximinus gladly accepted of this charge, and performed his duty with great exactness and success, setting an example of virtue and discipline to all the commanders of the army. Nor was his valour less apparent against the Germans, whither he was sent with his legion; so that he was unanimously considered as the boldest, bravest, most valiant, and most virtuous soldier in the whole empire. He soon, however, forfeited all these justly merited titles, when he was raised to the throne; and, from being the most loved commander in the army, he became the most cruel tyrant upon earth. Yet in fact, his former virtues were all of the severe and rigid kind, which, without any education, might very easily degenerate into tyranny; so that he might have mistaken his succeeding cruelty for discipline, and his severity for justice. However this be, Maximinus is considered as one of the greatest monsters of cruelty that ever disgraced power; and, fearful of nothing himself, he seemed to sport with the terrors of all mankind.

398 Becomes a cruel tyrant.

He began his reign, by endeavouring to force obedience from every rank of people, and by vindicating his authority by violence. The senate and people of Rome were the first that incurred his resentment. They utterly refusing to confirm the election of the army, he was the first emperor who reigned without their concurrence or approbation. However, he seemed regardless of their opposition, proceeding to secure his election by putting all such to death as had been raised by his predecessor. The Christians also, having found favour in the former reign, felt the weight of his resentment; and were persecuted in several parts of the empire, particularly in those where he himself resided. His cruelty likewise extended to the rich, whose lives and estates became a frequent sacrifice to avarice and suspicion. But what appears still a more extraordinary instance of his cruelty, being ashamed of the meanness of his extraction, he commanded all such as were best acquainted with him and his parentage to be slain, although there were some among the number that had relieved him in his low condition.

394 His success in war.

However, his cruelties did not retard his military operations, which were carried on with a spirit becoming a better monarch. He overthrew the Germans in several battles, wasted all their country with fire and sword for 400 miles together, and set a resolution of subduing all the northern nations as far as the ocean. In these expeditions, in order to attach the soldiers more firmly to him, he increased their pay; and in every duty of the camp, he himself took as much pains as the meanest centinel in his army, showing incredible courage and assiduity. In every engagement, where the conflict was hottest, Maximinus was always seen fighting there in person, and destroying all before him: for, being bred a barbarian, he considered it as his duty to combat as a common soldier, while he commanded as a general.

395 Conspiracies formed against him.

In the mean time, his cruelties had so alienated the minds of his subjects, that several conspiracies were secretly aimed against him. Magnus, a consular person, and some others, had plotted to break down a wooden bridge, as soon as the emperor had passed it, and thus to abandon him to the enemy. But this being discovered, gave Maximinus an opportunity of indulging his natural severity, upon this pretext alone causing above 4000 to be slain. Shortly after, some of Alexander's old soldiers withdrawing themselves from the camp, proclaimed one Quarcianus as emperor, who had been lately disgusted at Maximinus for being dismissed from employment. The soldiers, in fact, constrained him to accept of the dangerous superiority to which he was exposed: and shortly after, in the spirit of the times, the person who had been the promoter of his advancement, murdered him in his bed, and carried his head to Maximinus; who received him kindly at first, but soon put him to a cruel death, for his complicated guilt of treason and treachery.

These partial insurrections were soon after followed by a spirit of general discontent throughout all the empire. The provinces of Africa were the first that showed their detestation of the tyrant, whose extortions and cruelties among them were become insupportable. They first slew his procurator; and afterwards considering how dangerous a crime they had committed, they resolved to throw off all expectations of pardon, and create a new emperor. Gordian was then proconsul of Africa, a person of great fame for his virtues, and highly reverenced for a blameless life of near 80. Him, therefore, they determined to elect; and accordingly the soldiers and natives assembling together, tumultuously entered his house, resolved to put their design in execution. Gordian, who at first [illegible]

396 Gordian proclaimed emperor.

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they were come to kill him, being made sensible of their intentions, utterly refused their offer, alleging his extreme age, and Maximinus's power. But all his opposition was vain: they constrained him to accept of the proffered dignity; and he, with his son Gordian, who was 46 years of age, were declared emperors. Being thus raised contrary to his inclination, the old man immediately wrote to the senate, declaring that he had unwillingly accepted of the empire, and would only keep his authority till he had freed it from the tyranny of its present oppressor. The senate very joyfully confirmed his election, adjudging Maximinus as an enemy and traitor to the state. The citizens also showed an equal zeal in the cause: they flew upon such as were the reputed friends of Maximinus, and tore them in pieces; even some who were innocent falling a sacrifice to the multitude's blind rage. So great an alteration being made in the city against the interests of Maximinus, the senate were resolved to drive the opposition to the extreme; and accordingly made all necessary preparations for their security, ordering Maximinus's governors to be displaced, and commanding all the provinces to acknowledge Gordian for emperor. This order was differently received in different parts, as people were affected to one or the other party: in some provinces the governors were slain; in others, the messengers of the senate; so that all parts of the empire felt the consequences of the civil war.

397 Rage of Maximinus on hearing the news.

In the mean time, when Maximinus was informed of these charges against him, his rage appeared ungovernable. He roared like a savage beast, and violently struck his head against the wall, showing every instance of ungovernable distraction. At length his fury being somewhat subsided, he called his whole army together; and, in a set speech, exhorted them to revenge his cause, giving them the strongest assurances that they should possess the estates of all such as had offended. The soldiers unanimously promised to be faithful; they received his harangue with their usual acclamations; and, thus encouraged, he led them towards Rome, breathing nothing but slaughter and revenge. However, he found many obstacles to his impetuosity; and, though he desired nothing so much as dispatch, his marches were incommodious and slow. The tumultuous and disobedient armies of the empire were at present very different from the legions that were led on by Sylla or Cæsar; they were loaded with baggage, and followed by slaves and women, rather resembling an eastern caravan, than a military battalion. To these inconveniences also was added the hatred of the cities through which he passed, the inhabitants all abandoning their houses upon his approach, and securing their provisions in proper hiding-places. However, in this complication of inconveniences and misfortunes, his affairs began to wear a favourable appearance in Africa: for Capelianus, the governor of Numidia, raised a body of troops in his favour, and marched against Gordian, towards Carthage; where he fought the younger Gordian, slew him, and destroyed his army. The father, hearing of the death of his son, together with the loss of the battle, strangled himself in his own girdle. Capelianus pursuing his victory, entered Carthage; where he gave a loose to pillage and slaughter, under a pretence of revenging the cause of Maximinus. The news of

398 Gordian defeated and killed.

these successes was soon brought to the emperor, who now increased his diligence, and flattered himself with a speedy opportunity of revenge. He led on his large army by hasty journeys into Italy, threatening destruction to all his opposers, and ardently wishing for fresh opportunities of slaughter.

Nothing could exceed the consternation of the senate upon the news of this defeat. They now saw themselves not only deprived of the assistance of Gordian and his son, on whom they greatly relied; but also opposed by two formidable tyrants, each commanding a victorious army, directly marching towards Rome, and meditating nothing but vengeance. In this afflicting exigence, they, with great solemnity, met at the temple of Jupiter, and after the most mature deliberations, chose Pupienus and Balbinus emperors conjointly. These were men who had acquired the esteem of the public both in war and peace, having commanded armies, and governed provinces, with great reputation; and being now appointed to oppose Maximinus, they made what levies they could, both in Rome and the country. With these, Pupienus marched to stop the progress of the invaders, leaving the city to a fresh and unlooked for calamity. This was occasioned by two of Maximinus's soldiers, who, entering the senate-house, were slain by two senators. This quickly gave offence to the body of the prætorian soldiers, who instantly resolved to take revenge, but were opposed by the citizens; so that nothing was seen throughout Rome, but tumult, slaughter, and cruelty. In this universal confusion, the calamity was increased by the soldiers setting the city on fire, while the wretched inhabitants were combating each other in the midst of the flames.

399 Pupienus and Balbinus proclaimed emperors.

Nevertheless, Maximinus himself, in whose favour these seditions were promoted, did not seem to be more fortunate. Upon being informed of the new election of emperors, his fury was again renewed, and he passed the Alps, expecting, upon entering Italy, to refresh his fatigued and famished army in that fertile part of the country. But in this he was entirely disappointed; the senate had taken such care to remove all kinds of sustenance to fortified places, that he still found himself reduced to his former necessities, while his army began to murmur for want. To this another disappointment was added shortly after: for approaching the city of Aquileia, which he expected to enter without any difficulty, he was astonished to find it prepared for the most obstinate resistance, and resolved to hold out a regular siege. This city was well fortified and populous, and the inhabitants greatly averse to Maximinus's government; but what added still more to its strength, it was commanded by two excellent generals, Crispinus and Menophilis, who had so well furnished it with men and ammunition, that Maximinus found no small resistance, even in investing the place. His first attempt was, to take the city by storm; but the besieged threw down such quantities of scalding pitch and sulphur upon his soldiers, that they were unable to continue the assault. He then determined upon a blockade; but the inhabitants were so resolute, that even the old men and children were seen combating upon the walls, while the women cut off their hair to furnish the soldiers with bow-strings. Maximinus's rage at this unexpected opposition was now

400 Aquileia besieged by Maximinus.

now ungovernable: having no enemy to wreck his resentment upon, he turned it against his own commanders. He put many of his generals to death, as if the city had held out through their neglect or incapacity, while famine made great depredations upon the rest of his army. Nothing now appeared on either side to terminate the contest, except the total destruction of either. But a mutiny in Maximin's own army a while rescued the declining empire from destruction, and saved the lives of thousands. The soldiers being long harassed by famine and fatigue, and hearing of revolts on every side, resolved to terminate their calamities by the tyrant's death. His great strength, and his being always armed, were, at first, the principal motives to deter any from assassinating him; but at length having made his guards accomplices in their design, they set upon him, while he slept at noon in his tent, and slew both him and his son, whom he had made his partner in the empire, without any opposition, after an usurpation of about three years, and in the 65th year of his age.

The tyrant being dead, and his body thrown to the dogs and birds of prey, Pupienus and Balbinus continued for some time emperors without opposition. But the prætorian soldiers, who had long been notorious for mutiny and treason, soon resolved on further change. Nor did the dissensions between the new made emperors themselves a little contribute to their downfall: for though both were remarkable for wisdom and age, yet they could not restrain the mutual jealousy of each other's power. Pupienus claimed the superiority from his great experience; while Balbinus was equally aspiring upon account of his family and fortune.

In this ill-judged contest, the prætorian soldiers, who were enemies to both, set upon them in their palace, at a time their guards were amused with seeing the Capitoline games. Pupienus perceiving their tumultuous approach, sent with the utmost speed for assistance from his colleague; but he, out of a culpable suspicion that something was designed only against himself, refused to send such of the German guards as were next his person. Thus the seditious soldiers found an easy access to both the emperors apartments; and dragging them from the palace towards the camp, slew them both, leaving their dead bodies in the streets, as a dreadful instance of their sedition.

In the midst of this sedition, as the mutineers were proceeding along, they by accident met Gordian, the grandson of him who was slain in Africa, and declared him emperor on the spot. The senate and people had been long reduced to the necessity of suffering their emperors to be nominated by the army; so that all they could do in the present instance was to confirm their choice. This prince was but 16 years old when he began his reign, but his virtues seemed to compensate for his want of experience. His principal aims were, to unite the opposing members of the government, and to reconcile the soldiers and citizens to each other. His learning is said to have been equal to his virtues; and we are assured that he had 62,000 books in his library. His respect for Misithæus, his governor and instructor, was such, that he married his daughter, and profited by his counsels in all the critical circumstances of his reign.

The first four years of this emperor's reign were attended with the utmost prosperity; but in the fifth he was alarmed with accounts from the east, that Sapor, king of Persia, had furiously invaded the confines of the Roman empire, and having taken Antioch, had pillaged Syria and all the adjacent provinces. Besides the Persians, the Goths also invaded the empire on their side, pouring down like an inundation from the north, and attempting to fix their residence in the kingdom of Thrace. To oppose both these invasions, Gordian prepared an army; and having gained some victories over the Goths, whom he obliged to retire, he turned his arms against the Persians, whom he defeated upon several occasions, and forced to return home with disgrace. In gaining these advantages, Misithæus, whom he had made prætorian præfect, had the principal share; but he dying soon after (as it is supposed being poisoned by Philip an Arabian, who was appointed his successor), the fortunes of Gordian seemed to die with him. The army began to be no longer supplied with provisions as usual; murmurs were heard to prevail, and these were artfully fomented by Philip. Things thus proceeding from bad to worse, Philip was at first made his equal in the command of the empire; shortly after, invested with the sole power; and, at length, finding himself capable of perpetrating his long meditated cruelty, Gordian was, by his order, slain, in the 22d year of his age, after a successful reign of near six years.

Philip having thus murdered his benefactor, was so fortunate as to be immediately acknowledged emperor by the army. The senate also, though they seemed at first to oppose his power, confirmed his election, and gave him, as usual, the title of *Augustus*. Philip was about 40 years old when he came to the throne; being the son of an obscure Arabian, who had been captain of a band of robbers. Upon his exaltation, he associated his son, a boy of six years of age, as his partner in the empire; and, in order to secure his power at home, made peace with the Persians, and marched his army towards Rome. On his way, having conceived a desire to visit his native country of Arabia, he built there a city called *Philippopolis*; and from thence returning to Rome, he was received as emperor, and treated with all the marks of submission, though not of joy. To put the people in good humour, he caused the secular games to be celebrated, with a magnificence superior to any of his predecessors, it being just 1000 years after the building of the city. Upon occasion of these games, we are told that both Philip and his son were converted to Christianity. However this be, a murderer and an ungrateful usurper does no great honour to whatever opinion he may happen to embrace. We have little account of the latter part of his reign in the wretched and mutilated histories of the times: we only learn, that the Goths having invaded the empire, Marinus, Philip's lieutenant, who was sent against them, revolted, and caused himself to be declared emperor. This revolt, however, was but of short duration; for the army which had raised him repented of their rashness, deposed him with equal levity, and put him to death. Decius was the person whom Philip appointed to command in the room of the revolting general. The chief merit of Decius with the emperor

Rome.

444 Hostilities against the Romans.

445 Is murdered by his sup. who succeeds.

446 The 1000th year of Rome.

Rome.

was, that when Marinus had rebelled, he averred in the senate, That the traitor's presumption would be very shortly his ruin; which, when it happened accordingly, Philip appointed him to succeed in the command of the rebellious army. Decius, who was a man of great subtlety, being thus entrusted with so much power, upon arriving at the army found that the soldiers were resolved on investing him with the supreme authority. He therefore seemed to suffer their importunities, as if through constraint; and, in the mean time, sent Philip word, that he had unwillingly assumed the title of emperor, the better to secure it for the rightful possessor: adding, that he only looked for a convenient opportunity of giving up his pretensions and title together. Philip knew mankind too well, to rely upon such professions: he therefore got together what forces he could from the several provinces, and led them forward towards the confines of Italy. However, the army was scarce arrived at Verona, when it revolted in favour of Decius, and setting violently upon Philip, a centinel, with one blow, cut off his head, or rather cleaved it asunder, separating the under jaw from the upper. Such was the deserved death of Philip, in the 45th year of his age, after a reign of about five years; Decius being universally acknowledged as his successor, A. D. 248.

407 Philip murdered, and is succeeded by Decius.

The activity and wisdom of Decius in some measure stopped the hastening decline of the Roman empire. The senate seemed to think so highly of his merits, that they voted him not inferior to Trajan; and indeed he seemed in every instance to consult their dignity in particular, and the welfare of all inferior ranks of people. He permitted them to choose a censor, as was the custom in the flourishing times of Rome; and Valerian, his general, a man of such strict morals, that his life was said to be a continual censorship, was chosen to that dignity.—But no virtues could now prevent the approaching downfall of the state; the obstinate disputes between the Pagans and the Christians within the empire, and the unceasing irruptions of barbarous nations from without, enfeebled it beyond the power of a remedy. To stop these, a persecution of the Christians, who were now grown the most numerous body of the people, was impolitically, not to say unjustly, begun; in which thousands were put to death, and all the arts of cruelty tried in vain to lessen their growing number. This persecution was succeeded by dreadful devastations from the Goths, particularly in Thrace and Mœsia, where they had been most successful. These irruptions Decius went to oppose in person; and coming to an engagement with them, slew 30,000 of the barbarians in one battle. However, being resolved to pursue his victory, he was, by the treachery of Gallus his own general, led into a defile, where the king of the Goths had secret information to attack him. In this disadvantageous situation, Decius first saw his son killed with an arrow, and soon after his whole army put to the rout. Wherefore, resolving not to survive his loss, he put spurs to his horse, and instantly plunging into a quagmire, was swallowed up, and his body could never be found after. He died in the 50th year of his age, after a short reign of two years and six months; leaving the character of an excellent prince, and one capable of averting the destruction of the empire, if human means could have effected it.

408 Is overcome, and killed by the Goths.

Gallus, who had thus betrayed the Roman army, had address enough to get himself declared emperor by that part of it which survived the defeat; he was 45 years old when he began to reign, and was descended from an honourable family in Rome. He bought a dishonourable peace from the enemies of the state, agreeing to pay a considerable annual tribute to the Goths, whom it was his duty to repress. Having thus purchased a short remission from war, by the disgrace of his country, he returned to Rome, to give a loose to his pleasures, regardless of the wretched situation of the empire.

409 Succeeded by Gallus.

Nothing can be more deplorable than the state of the Roman provinces at this time. The Goths and other barbarous nations, not satisfied with their late bribes to continue in peace, broke in upon the eastern parts of Europe. On the other side, the Persians and Scythians committed unheard of ravages in Mesopotamia and Syria. The emperor, regardless of every national calamity, was lost in debauch and sensuality at home; and the Pagans were allowed a power of persecuting the Christians through all parts of the state; these calamities were succeeded by a pestilence, that seemed to have in general spread over every part of the earth, and which continued raging for several years in an unheard of manner; and all these by a civil war, which followed shortly after, between Gallus and his general Æmilianus, who having gained a victory over the Goths, was proclaimed emperor by his conquering army. Gallus hearing this, was soon roused from the intoxications of pleasure, and prepared to oppose his dangerous rival. Both armies met in Mœsia, and a battle ensued, in which Æmilianus was victorious, and Gallus, with his son, were slain. His death was merited, and his vices were such as to deserve the detestation of posterity. He died in the 47th year of his age, after an unhappy reign of two years and four months, in which the empire suffered inexpressible calamities. Æmilianus, after his victory over Gallus, expected to be acknowledged emperor; but he soon found himself miserably disappointed. The senate refused to acknowledge his claims; and an army that was stationed near the Alps chose Valerian, their own commander, to succeed to the throne. In consequence of this, Æmilianus's soldiers began to consider their general as an obstacle to the universal tranquillity, and slew him in order to avoid the mischiefs of a civil war.

410 Miserable state of the empire.

Valerian being thus universally acknowledged as emperor, although arrived at the age of 70, set about reforming the state with a spirit that seemed to mark a good mind and unabated vigour. But reformation was then grown almost impracticable. The disputes between the Pagans and Christians divided the empire as before; and a dreadful persecution of the latter ensued. The northern nations over-ran the Roman dominions in a more formidable manner than ever; and the empire began to be usurped by a multitude of petty leaders, each of whom, neglecting the general state, set up for himself. To add to these calamities, the Persians, under their king Sapor, invaded Syria; and coming into Mesopotamia, took the unfortunate Valerian prisoner,

411 Valerian taken prisoner, and cruelly insulted by the Persians.

soner, as he was making preparations to oppose them. Nothing can exceed the indignities, as well as the cruelties, which were practised upon this unhappy monarch, thus fallen into the hands of his enemies. Sapor, we are told, always used him as a footstool for mounting his horse; he added the bitterness of ridicule to his insults, and usually observed, That an attitude like that to which Valerian was reduced, was the best statue that could be erected in honour of his victory. This horrid life of insult and sufferance continued for seven years, and was at length terminated by the cruel Persian's commanding his prisoner's eyes to be plucked out, and afterwards causing him to be flead alive.

2 Empire ed on s by rba-

The news of the defeat of the Roman army by the Persians, and the captivity of Valerian, no sooner reached the barbarous nations at war with Rome, than they poured on all sides into the Roman territories in incredible multitudes, threatening the empire, and Rome itself, with utter destruction. The Goths and Scythians ravaged Pontus and Asia, committing every where dreadful devastations; the Alemanni and Franks having over-run Rhætia, advanced as far as Ravenna; putting all to fire and sword; the Quadi and Sarmatians seized on great part of Dacia and Pannonia; while other barbarous nations, invading Spain, made themselves masters of Tarraco and other important places in that province. In the mean time Gallienus, the son of Valerian, having promised to revenge his father's captivity, and repress the barbarians, was chosen emperor without any opposition. He was at that time in Gaul; but hastened into Italy, from whence he drove out the barbarians, either by the terror of his approach, or by overcoming them in battle.—In Dacia and Pannonia, also, the barbarians were driven back by Regillianus, who commanded there, and who is said to have gained several victories in one day.

But in the mean time, one Ingenuus, a man of great reputation in war, and universally beloved both by the people and soldiery, caused himself to be proclaimed emperor in Pannonia, where he was generally acknowledged as well as in Mœsia. Gallienus no sooner heard of his revolt, than he marched from the neighbourhood of Ravenna, where he then was, into Illyricum, engaged Ingenuus, and put him to flight. Some authors tell us, that Ingenuus was killed after the battle by his own soldiers; while others affirm, that he put an end to his own life to avoid falling into the hands of Gallienus, who used his victory with a cruelty hardly to be parallelled. The following letter to Verianus Celer, one of his officers, will show the disposition of this emperor: "I shall not be satisfied (says he) with your putting to death only such as have borne arms against me, and might have fallen in the field: you must in every city destroy all the males, old and young; spare none who have wished ill to me; none who have spoken ill of me the son of Valerian, the father and brother of princes. Ingenuus emperor! Tear, kill, cut in pieces without mercy: you understand me; do then as you know I would do, who have written to you with my own hand." In consequence of these cruel orders, a most dreadful havock was made among that unhappy people; and, in several cities, not one male child was left alive. The troops who had formerly served under Ingenuus, and the inhabitants of Mœsia who had escaped the general slaughter, provoked by these cruelties, proclaimed Regillianus emperor. He was a Dacian by birth, descended, as was said, from the celebrated king Decebalus whom Trajan had conquered; and had, by several gallant actions, gained reputation in the Roman armies. After he was proclaimed emperor, he gained great advantages over the Sarmatians; but was soon after murdered by his own soldiers. These revolts were quickly followed by many others. Indeed it is not surprising, at a time when the reins of government were held with so loose an hand, that a crowd of usurpers should start up in every province of the empire. The great number of usurpers who pretended to the empire about this time have been distinguished by the name of the *thirty tyrants*. However, there were only 19; viz. Cyriades, Macrianus, Balista, Odenatus, and Zenobia in the east: in Gaul, and the western provinces, Posthumus, Lollianus, Victorinus and his mother Victoria, Marius, and Tetricus; in Illyricum, and on the confines of the Danube, Ingenuus, Regillianus, and Aureolus; in Pontus, Saturninus; in Isauria, Trebellianus; in Thessaly, Piso; in Achaia, Valens; in Egypt, Æmilianus; and in Africa, Celsus. Several of these pretenders to the empire, however, though branded with the opprobrious appellation of tyrants, were eminent examples of virtue, and almost all of them were possessed of a considerable share of vigour and ability. The principal reason assigned for their revolt was, the infamous character of Gallienus, whom neither officers nor soldiers could bear to serve. Many of them, however, were forced by the soldiers to assume the imperial dignity much against their will. "You have lost," said Saturninus to his soldiers when they invested him with the purple, "a very useful commander, and have made a very wretched emperor." The apprehensions of Saturninus were justified by the event. Of the 19 usurpers already mentioned not one died a natural death; and in Italy and Rome Gallienus alone continued to be acknowledged emperor. That prince indeed honoured Odenatus prince of Palmyra with the title of *Augustus*, who continued to possess an independent sovereignty in the east all his lifetime, and on his death transmitted it to his wife Zenobia. See PALMYRA.

493 nstrous lty of new eror lienus.

494 The thirty tyrants.

495 Fatal consequences of these usurpations.

The consequences of these numerous usurpations were the most fatal that can be conceived. The elections of these precarious emperors, their life and death, were equally destructive to their subjects and adherents. The price of their elevation was instantly paid to the troops by an immense donative drawn from the exhausted people. However virtuous their character, and however pure their intentions might be, they found themselves reduced to the necessity of supporting their usurpation by frequent acts of rapine and cruelty. When they fell, they involved armies and provinces in their fall, as appears from the letter of Gallienus already quoted. Whilst the forces of the state were dispersed in private quarrels, the defenceless provinces lay exposed to every invader. The bravest usurpers were compelled, by the perplexity of their situation, to conclude dishonourable treaties with the barbarians, and even to submit to shameful tributes, and introduce such numbers of barbarians into the Roman service as seemed sufficient at once to overthrow the empire.

Rome.

But when the empire seemed thus ready to sink at once, it suddenly revived on the death of Gallienus, who was murdered by Martian, one of his own generals, while he besieged Aureolus, one of the tyrants, in Milan. His death gave general satisfaction to all, except his soldiers, who hoped to reap the reward of their treachery by the plunder of Milan. But being frustrated in these expectations, and in some measure kept within bounds by the largesses of Martian, Flavius Claudius was nominated to succeed, and joyfully accepted by all orders of the state, and his title confirmed by the senate and the people.

496 Gallienus murdered, and is succeeded by Claudius,

We are not sufficiently assured of this emperor's lineage and country. Some affirm that he was born in Dalmatia, and descended from an ancient family there; others assert that he was a Trojan; and others, that he was son to the emperor Gordian. But, whatever might have been his descent, his merits were by no means doubtful. He was a man of great valour and conduct, having performed the most eminent services against the Goths, who had long continued to make irruptions into the empire. He was now about 55 years old, equally remarkable for the strength of his body and the vigour of his mind; he was chaste and temperate, a rewarder of the good, and a severe punisher of such as transgressed the laws. Thus endowed, therefore, he in some measure put a stop to the precipitate decline of the empire, and once more seemed to restore the glory of Rome.

497 Who defeats the Goths, and retrieves the affairs of the empire,

His first success, upon being made emperor, was against Aureolus, whom he defeated near Milan. His next expedition was to oppose the Goths, against whom he led a very numerous army. These barbarians had made their principal and most successful irruptions into Thrace and Macedonia, swarmed over all Greece, and had pillaged the famous city of Athens, which had long been the school of all the polite arts to the Romans. The Goths, however, had no veneration for those embellishments that tend to soften and humanize the mind, but destroyed all monuments of taste and learning with the most savage alacrity. It was upon one of these occasions, that, having heaped together a large pile of books in order to burn them, one of the commanders dissuaded them from the design, alleging, that the time which the Grecians should waste on books would only render them more unqualified for war. But the empire seemed to tremble, not only on that side, but almost on every quarter. At the same time, above 300,000 of these barbarians (the Heruli, the Trutangi, the Virturgi, and many nameless and uncivilized nations) came down the river Danube, with 2000 ships, fraught with men and ammunition, spreading terror and devastation on every side.

In this state of universal dismay, Claudius alone seemed to continue unshaken. He marched his disproportioned army against the savage invaders; and though but ill prepared for such an engagement, as the forces of the empire were then employed in different parts of the world, he came off victorious, and made an incredible slaughter of the enemy. The whole of their great army was either cut to pieces or taken prisoners: houses were filled with their arms; and scarce a province of the empire, that was not furnished with slaves from those that survived the defeat. These successes were followed by many others in different parts of the empire; so that the Goths, for a considerable time after, made but a feeble opposition. He some time after marched against the revolted Germans, and overthrew them with considerable slaughter. His last expedition was to oppose Tetricus and Zenobia, his two puissant rivals in the empire. But on his march, as he approached near Sirmium, in Pannonia, he was seized with a pestilential fever, of which he died in a few days, to the great regret of his subjects, and the irreparable loss of the Roman empire. His reign, which was not quite two years continuance, was active and successful; and such is the character given of him by historians, that he is said to have united in himself the moderation of Augustus, the valour of Trajan, and the piety of Antoninus.

Immediately after the death of Claudius, the army made unanimous choice of Aurelian, who was at that time master of the horse, and esteemed the most valiant commander of his time. However, his promotion was not without opposition on the part of the senate, as Quintillus, the brother of the deceased emperor, put in his claim, and was for a while acknowledged at Rome. But his authority was of very short duration; for finding himself abandoned by those who at first instigated him to declare for the throne, he chose to prevent the severity of his rival by a voluntary death, and causing his veins to be opened, expired, after having reigned but 17 days.

Aurelian being thus universally acknowledged by all the states of the empire, assumed the command, with a greater show of power than his predecessors had enjoyed for some time before. This active monarch was born of mean and obscure parentage in Dacia, and was about 55 years old at the time of his coming to the throne. He had spent the early part of his life in the army, and had risen through all the gradations of military duty. He was of unshaken courage and amazing strength; he in one engagement killed 40 of the enemy with his own hand, and above 900 at several different times. In short, his valour and expedition were such, that he was compared to Julius Cæsar; and, in fact, only wanted mildness and clemency to be every way his equal.

499 His great success against the barbarians.

The whole of this monarch's reign was spent in repressing the irruptions of the northern nations, in humbling every other pretender to the empire, and punishing the monstrous irregularities of his own subjects. He defeated the Marcomanni, that had invaded Italy, in three several engagements, and at length totally destroyed their army. He was not less successful against Zenobia, the queen of the East, a woman of the most heroic qualifications, who had long disclaimed the Roman power, and established an empire of her own, as is related under the article PALMYRA.

Aurelian having thus brought back peace to the empire, endeavoured, by the rigours of justice, to bring back virtue also. He was very strict in punishing the crimes of the soldiery: in his orders to his lieutenants, he insisted that the peasants should not be plundered upon any pretences; that not even a grape, a grain of salt, or a drop of oil, should be exacted unjustly. He caused a soldier, who had committed adultery with his hostess, to have his feet tied to the tops of two trees, forcibly bent at top to meet each other; which being let loose, and suddenly recoiling, tore the criminal

criminal in two. This was a ſeverity that might take the name of cruelty; but the vices of the age, in ſome meaſure, required it. In theſe puniſhments inflicted on the guilty, the Chriſtians, who had all along been growing more numerous, were ſharers. Againſt theſe he drew up ſeveral letters and edicts, which ſhowed that he intended a very ſevere perſecution; but if we may believe the credulous hiſtorians of the times, he was diverted juſt as he was going to ſign them by a thunderbolt, which fell ſo near his perſon, that all the people judged him to be deſtroyed.

But, however Heaven might have interpoſed on this occaſion, it is certain that his ſeverities at laſt were the cauſe of his deſtruction. Meneſthus, his principal ſecretary, having been threatened by him for ſome fault which he had committed, began to conſider how he might prevent the meditated blow. For this purpoſe, he forged a roll of the names of ſeveral perſons, whom he pretended the emperor had marked out for death, adding his own to ſtrengthen him in the confidence of the party. The ſcroll thus contrived was ſhown with an air of the utmoſt ſecrecy to ſome of the perſons concerned; and they, to procure their ſafety, immediately agreed with him to deſtroy the emperor. This reſolution was ſoon put in execution; for, as the emperor paſſed with a ſmall guard from Uraclea, in Thrace, towards Byzantium, the conſpirators ſet upon him at once, and ſlew him with very ſmall reſiſtance. He was ſlain in the 60th, or, as ſome ſay, in the 63d year of his age, after a very active reign of almoſt five years.

500 Is murdered.

The number of pretenders to the throne, which had formerly infeſted the empire, were, by the laſt monarch's activity, ſo entirely removed, that there now ſeemed to be none that would venture to declare himſelf a candidate. The army referred the choice to the ſenate; and, on the other ſide, the ſenate declined it; ſo that a ſpace of near eight months elapſed in theſe negociations. At length, however, the ſenate made choice of Tacitus, a man of great merit, and noway ambitious of the honours that were offered him. Upon being ſolicited to accept the empire, he at firſt refuſed, and retired to his country-houſe in Campania, to avoid their importunities; but being at length prevailed upon, he accepted the reins of government, being at that time 75 years old.

501 Tacitus often entreated.

One of the firſt acts of his government was the puniſhment of thoſe who had conſpired againſt the late emperor. Meneſthus was impaled alive, his body being thrown to be devoured by wild beaſts; his eſtate alſo was confiſcated to the exchequer; and his ready money, which was very conſiderable, applied towards paying the army. During this ſhort reign, the ſenate ſeemed to have a large ſhare of authority, and the hiſtorians of the times are liberal of their praiſes to ſuch emperors as were thus willing to divide their power.—Upon endeavouring to obtain the conſulſhip for his brother Probus, he was refuſed it by the ſenate; at which he ſeemed no way moved, but calmly remarked that the ſenate beſt knew whom to chooſe. This moderation prevailed in all the reſt of his conduct: he was extremely temperate; his table was plain, and furniſhed with nothing expenſive; he even prohibited his empreſs from wearing jewels, and forbad the uſe of gold and embroidery. He was fond of learning, and the memory of ſuch men as had deſerved well of their country. He particularly eſteemed the works of his nameſake Tacitus the hiſtorian; commanding that they ſhould be placed in every public library throughout the empire, and that many copies of them ſhould be tranſcribed at the public charge. A reign begun with ſuch moderation and juſtice, only wanted continuance to have made the empire happy; but after enjoying the empire about ſix months, he died of a fever in his march to oppoſe the Perſians and Scythians, who had invaded the eaſtern parts of the empire.

502 His death.

Upon the death of Tacitus the army ſeemed divided in the choice of an emperor; one part of it choſe Florianus, brother to the deceaſed; but the majority were for ſome time undetermined. They alleged amongſt each other the neceſſity of chooſing one eminent for valour, honour, piety, clemency, and probity; but the laſt virtue being that chiefly inſiſted upon, the whole army, as if by common conſent, cried out that Probus ſhould be emperor. He was accordingly confirmed in this dignity with the uſual ſolemnities: and Florianus finding himſelf deſerted, even by thoſe legions who had promiſed to ſtand up in his ſupport, opened his arteries and bled himſelf to death.

503 Probus raised to the empire.

Probus was 44 years old when he aſcended the throne, being born of noble parentage at Sirmium in Pannonia, and bred up a ſoldier from his youth. He began early to diſtinguiſh himſelf for his diſcipline and valour; being frequently the firſt man who in beſieging towns ſcaled the walls, or that burſt into the enemy's camp. He was no leſs remarkable for ſingle combats, and ſaving the lives of many eminent citizens. Nor was his activity and courage, when elected to the empire, leſs apparent, than in his private ſtation. He firſt repreſſed the Germans in Gaul, of whom he ſlew 400,000. He then marched into Dalmatia, to oppoſe and ſubdue the Sarmatians. From thence he led his forces into Thrace, and forced the Goths to ſue for peace. He after that turned his arms towards Aſia; ſubdued the province of Iſauria; and marching onward, conquered a people called the *Blemmyes*: who, leaving their native foreſts of Ethiopia, had poſſeſſed themſelves of Arabia and Judea, and had continued in a ſtate of rebellion ſince the reign of Gallienus. Narſis alſo, the king of Perſia, ſubmitted at his approach: and upon his return into Europe, he divided the depopulated parts of Thrace among its barbarous invaders: a circumſtance that afterwards produced great calamities to the empire.

504 His conquests.

His diligence was not leſs conſpicuous in ſuppreſſing inteſtine commotions. Saturninus, being compelled by the Egyptians to declare himſelf emperor, was defeated and ſlain. Proculus alſo (a perſon remarkable only for his great attachment to women, and who boaſted in a letter, that, having taken 100 Sarmatian virgins priſoners, he deprived ten of that name in one night, and all the reſt within a fortnight) ſet up againſt the emperor; but was compelled to fly, and at length delivered up by the Germans. At the ſame time Conoſus (who was a remarkable votary to Bacchus, being able to drink as much wine as ten could do, without being diſordered) rebelled, and being overcome hanged himſelf in deſpair. Probus, when he ſaw him immediately after his death, could not avoid pointing to him, and ſaying, "There hangs not a man but a caſk." Still, however, notwithſtanding every effort to give quiet to the empire, the

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the barbarians who surrounded it kept it in continual alarms. They were frequently repulsed into their native wilds, but they as certainly returned with fresh rage and increased ferocity. The Goths and Vandals, finding the emperor engaged in quelling domestic disputes, renewed their accustomed inroads, and once more felt the punishment of their presumptions. They were conquered in several engagements; and Probus returned in triumph to Rome. His active temper, however, would not suffer him to continue at rest whilst a single enemy was left to conquer. In his last expedition he led his soldiers against the Persians; and going through Sirmium, the place of his nativity, he there employed several thousands of his soldiers in draining a fen that was incommodious to the inhabitants. The fatigues of this undertaking, and the great restraint that was laid upon the soldiers licentious manners, produced a conspiracy, which ended in his ruin: for taking the opportunity as he was marching into Greece, they set upon and slew him after he had reigned six years and four months with general approbation.

505 Is murdered.

507 Reign of Carus, Carinus, and Numerianus.

Carus, who was prætorian prefect to the deceased emperor, was chosen by the army to succeed him; and he, to strengthen his authority, named his two sons Carinus and Numerianus with him in command; the former of whom was as much sullied by his vices, as the youngest was virtuous, modest, and courageous. The new emperor had scarce time to punish the murderers of the late monarch, when he was alarmed by a fresh irruption of the Sarmatians; over whom he gained a signal victory. The Persian monarch also made some attempts upon the empire; but Carus assured his ambassadors, that if their master persisted in his obstinacy, all his fields should shortly be as bare as his own bald head, which he showed them. In consequence of this threat, he marched to the very walls of Ctesiphon, and a dreadful battle ensuing, he once more gained a complete victory. What the result of this success might have been, is not known; for he was shortly after struck dead by lightning in his tent, with many others that were round him. Numerianus, the youngest son, who accompanied his father in this expedition, was inconsolable for his death; and brought such a disorder upon his eyes with weeping, that he was obliged to be carried along with the army, shut up in a close litter. The peculiarity of his situation, after some time, excited the ambition of Aper, his father-in-law, who supposed that he could now, without any great danger, aim at the empire himself. He therefore hired a mercenary villain to murder the emperor in his litter; and the better to conceal the fact, gave out that he was still alive, but unable to endure the light. In this manner was the dead body carried about for some days, Aper continuing to attend it with the utmost appearance of respect, and to take orders as usual. The offensiveness, however, of its smell at length discovered the treachery, and excited an universal uproar throughout the army. In the midst of this tumult, Diocleſian, one of the most noted commanders of his time, was chosen emperor, and with his own hand slew Aper; having thus, as it is said, fulfilled a prophecy, which had said, that Diocleſian should be emperor after he had slain a boar; alluding to the name of his rival, which signifies a boar. Carinus, the remaining son, did not long survive his father and brother; for giving himself up to his vices, and yet at the same time opposing the new-made emperor, the competitors led their forces into Mœsia; where Diocleſian being victorious, Carinus was slain by a tribune of his own army, whose wife he had formerly abused.

508 Diocleſian raised to the empire.

Diocleſian was a person of mean birth; being accounted, according to some, the son of a scrivener; and of a slave, according to others. He received his name from Dioclea, the town in which he was born; and was about 40 years old when he was elected to the empire. He pardoned all who had joined Carinus, without injuring either their fortunes or honours. Conscious also that the weight of empire was too heavy for one alone to sustain, he took in Maximian, his general, as a partner in the fatigues of duty, making him his equal and companion on the throne. Thus mutually assisting each other, these two continued to live in strict friendship; and though somewhat differing in temper (as Maximian was rather a man of vicious inclinations), yet they concurred in promoting the general good, and humbling their enemies. And it must be observed, that there never was a period in which there were more numerous or formidable enemies to oppose.

509 Takes Maximian for his partner.

510 Insurrections, and other calamities.

The peasants and labourers in Gaul made a dangerous insurrection, under the conduct of Amandus and Helianus, but were subdued by Maximian. Achilleus, who commanded in Egypt, proclaimed himself emperor; and it was not without many bloody engagements that he was overcome, and condemned by Diocleſian to be devoured by lions. In Africa, the Roman legions, in like manner, joined with many of the natives, seized upon the public revenues, and plundered those who continued in their duty. These were also subdued by Maximian; and, after a long dubious war, constrained to sue for peace. About the same time, a principal commander in Britain, named *Carausius*, proclaimed himself emperor, and possessed himself of the island. To oppose this general's claims, Maximian made choice of Constantius Chlorus, whom he created Cæsar, and married to Theodora his daughter-in-law. He, upon his arrival in Britain, finding Carausius very strong, and continually reinforced from Germany, thought proper to come to an accommodation; so that this usurper continued for seven years in quiet possession of the whole island, till he was slain by Alectus, his friend and intimate. About this time also, Narses, king of Persia, began a dangerous war upon the empire, and invaded Mesopotamia. To stop the progress of the enemy upon this quarter, Diocleſian made choice of Galerius (surnamed *Armentarius*, from the report of his being born of a cow-herd in Dacia); and he likewise was created Cæsar. His success also, though very doubtful in the beginning, was in the end terminated according to his wishes. The Persians were overcome in a decisive engagement, their camp plundered and taken, and their king's wives and children made prisoners of war. There only remained, of all the enemies of the Roman empire, those who lay to the northward unsubdued. These were utterly unconquerable, as well upon account of their savage fierceness, as the inhospitable severity of the climate and soil from whence they issued. Ever at war with the Romans, they issued forth, when the armies that were to repress their invasions were called away; and upon their return, they as suddenly withdrew into cold, barren, and inaccessible places,

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places, which only themselves could endure. In this manner the Goths, Sarmatians, Alani. Quadi, &c. poured down in incredible numbers; while every defeat seemed but to increase their strength and perseverance. Of these, multitudes were taken prisoners, and sent to people the more southern parts of the empire; still greater numbers were destroyed; and though the rest were driven back to their native forests, yet they continued ever mindful of their inveterate enmity, and, like a savage beast, only continued inactive, till they had licked their wounds for a new encounter.

11 Christians cruel persecution.

During this interval, as if the external miseries of the empire were not sufficient, the tenth and last great persecution was renewed against the Christians. This is said to have exceeded all the former in severity: and such was the zeal with which it was pursued, that, in an ancient inscription, we are informed that they had effaced the name and superstition of the Christians, and had restored and propagated the worship of the gods. Their attempts, however, were but the malicious efforts of an expiring party; for Christianity shortly after was established by law, and triumphed over the malice of all its enemies. In the midst of the troubles raised by this persecution, and of the contests that struck at the internal parts of the state, Diocleſian and Maximian surprised the world by resigning their dignities on the same day, and both retiring into private stations. Historians are much divided concerning the motives that thus induced them to give up those honours which they had purchased with so much danger. Some ascribe it to the philosophical turn of Diocleſian; and others, to his being disgusted with the obstinacy of his Christian subjects: but Lactantius asserts, that he was compelled to it, together with his partner, by Galerius, who coming to Nicomedia, upon the emperor's recovery from a great sickness, threatened him with a civil war in case he refused to resign. However, of this we are well assured, that he still preserved a dignity of sentiment in his retirement, that might induce us to believe he had no other motive for resignation than the love of quiet, and the consciousness of his inability to discharge on a sick-bed the duties of a sovereign. Having retired to his birth-place, he spent his time in cultivating his garden, assuring his visitors that then only he began to enjoy the world, when he was thought by the rest of mankind to forsake it. When also some attempted to persuade him to resume the empire, he replied, That if they knew his present happiness, they would rather endeavour to imitate than disturb it. In this contented manner he lived some time, and at last died either by poison or madness, it is uncertain which. His reign, which continued 20 years, was active and useful; and his authority, tinctured with severity, was well adapted to the depraved state of morals at that time.

512 Diocleſian Maximian resign.

Maximian, his partner in the empire and in resignation, was by no means so contented with his situation. He longed once more for power, and disturbed the two succeeding reigns with various efforts to resume it; attempting to engage Diocleſian in the same design. Being obliged to leave Rome, where he had bred great confusion, he went over into Gaul, where he was kindly received by Constantine, the then acknowledged emperor of the west. But here also continuing his intrigues, and endeavouring to force his own daughter and destroy her husband, he was detected, and condemned to die by whatever death he should think proper; and Lactantius tells us that he chose hanging.

Rome.

513 Constantius Chlorus and Galerius, emperors.

Upon the resignation of the two emperors, the two Cæsars whom they had formerly chosen were universally acknowledged as their successors. Constantius Chlorus, who was so called from the plainness of his complexion, was virtuous, valiant, and merciful. Galerius, on the other hand, was brave, but brutal, incontinent, and cruel. As there was such a disparity in their tempers, they readily agreed, upon coming into full power, to divide the empire; Constantius being appointed to govern the western parts; namely, Italy, Sicily, the greatest part of Africa, together with Spain, Gaul, Britain, and Germany: Galerius had the eastern parts allotted to his share; to wit, Illyricum, Pannonia, Thrace, Macedonia, all the provinces of Greece, and the Lesser Asia, together with Egypt, Syria, Judea, and all the countries eastward. The greatness of the division, however, soon induced the emperors to take in two partners more, Severus and Maximin, who were made Cæsars, and assisted in the conducting of affairs; so that the empire now was under the guidance of four persons, all invested with supreme authority.

We are informed but of few particulars of the reign of Constantius, except a detail of his character, which appears in every light most amiable. He was frugal, chaste, and temperate. His mercy and justice were equally conspicuous in his treatment of the Christians, whom he would not suffer to be injured; and when at length persuaded to displace all the Christian officers of his household that would not change their religion, when some of them complied he sent them away in disgrace; alleging, that those who were not true to their God, would never be faithful to their prince.

In the second year of his reign he went over into Britain; and leaving his son Constantine as a kind of hostage in the court of his partner in the empire, took up his residence at York. He there continued in the practice of his usual virtues; till falling sick, he began to think of appointing his son for his successor. He accordingly sent for him with all speed; but he was past recovery before his arrival: notwithstanding, he received him with marks of the utmost affection, and raising himself in his bed, gave him several useful instructions, particularly recommending the Christians to his protection. He then bequeathed the empire to his care; and crying out, that none but the pious Constantine should succeed him, he expired in his arms.

In the mean time, Galerius, his partner in the empire, being informed of Constantine's advancement, testified the most ungovernable rage, and was even going to condemn the messenger who brought him the account: but being dissuaded, he seemed to acquiesce in what he could not prevent, and sent him the marks of royalty; but at the same time declared Severus emperor, in opposition to his interests. Just about this time also, another pretender to the empire started up. This was Maxentius, a person of mean extraction; but very much favoured by the soldiers, whom he permitted to pillage at discretion. In order to oppose Maxentius, Severus led a numerous army towards the gates of Rome; but his soldiers considering against whom they were to fight, immediately abandoned him; and shortly after he put an end to his own life, by opening his veins. To revenge his death, Galerius marched into Italy, resolving

514 Maxentius usurps the throne.

Rome.

solving to ruin the inhabitants, and to destroy the whole senate. His soldiers, however, upon approaching the capital began to waver in their resolutions: wherefore he was obliged to have recourse to intreaties, imploring them not to abandon him; and, retiring by the same route by which he had advanced, made Licinius, who was originally the son of a poor labourer in Dacia, Cæsar, in the room of Severus who was slain. This seemed to be the last act of his power; for shortly after he was seized with a very extraordinary disorder in his privities, which baffled all the skill of his physicians, and carried him off, after he had languished in torments for near the space of a year. His cruelty to the Christians was one of the many crimes alleged against him; and their historians have not failed to aggravate the circumstances of his death as a judgment from Heaven for his former impiety. However this be, he abated much of his severities against them on his deathbed; and revoked those edicts which he had formerly published, tending to their persecution, a little before his death.

515 Dreadful death of Galerius.

Constantine being thus delivered from his greatest opponent, might now be considered as possessing more power than any of his rivals who were yet remaining. The empire was at that time divided between him and three others: Maxentius, who governed in Rome, a person of a cruel disposition, and a stedfast supporter of paganism; Licinius, who was adopted by Galerius, and commanded in the east; and likewise Maximin, who had formerly been declared Cæsar with Severus, and who also governed some of the eastern provinces.

For some time all things seemed to wear a peaceful appearance; till at length, either ambition, or the tyrannical conduct of Maxentius, induced Constantine to engage in an expedition to expel that commander from Rome, and to make the proper preparations for marching into Italy. It was upon this occasion that he formed a resolution which produced a mighty change in the politics as well as the morals of mankind, and gave a new turn to the councils of the wise, and the pursuits ambition. One evening, as we are told by Eusebius, the army being upon its march toward Rome, Constantine was taken up with various considerations upon the fate of sublunary things, and the dangers of his approaching expedition: sensible of his own incapacity to succeed without divine assistance, he employed his meditations upon the opinions that then were chiefly agitated among mankind, and sent up his ejaculations to Heaven to inspire him with wisdom to choose the path he ought to pursue. It was then, as the sun was declining, that there suddenly appeared a pillar of light in the heavens, in the fashion of a cross, with this inscription, ΤΟΥΤΙΩ ΝΙΚΗ "In this overcome." So extraordinary an appearance did not fail to create astonishment both in the emperor and his whole army, who considered it as their dispositions led them to believe. Those who were attached to paganism, prompted by their auspices, pronounced it a most inauspicious omen, portending the most unfortunate events. But it made a different impression on the emperor's mind; who, as the account goes, was farther encouraged by visions the same night. He therefore, the day following, caused a royal standard to be made, like that which he had seen in the heavens; and commanded it to be carried before him in his wars, as an ensign of victory and celestial protection. After this, he consulted with several of the principal teachers of Christianity, and made a public avowal of that sacred persuasion.

516 Constantine's vision and conversion to Christianity.

Constantine having thus attached his soldiers to his interest, who were mostly of the Christian persuasion, lost no time in entering Italy with 90,000 foot and 8000 horse; and soon advanced to the very gates of Rome. The unfortunate Maxentius, who had long given himself up to ease and debauchery, now began to make preparations when it was too late. He first put in practice all the superstitious rites which paganism taught to be necessary; and then consulted the Sibylline books; from whence he was informed, that on that great day the enemy of Rome should perish. This prediction, which was equivocal, he applied to Constantine; wherefore, leaving all things in the best posture, he advanced from the city with an army of 100,000 foot and 18,000 horse. The engagement was for some time fierce and bloody, till his cavalry being routed, victory declared upon the side of his opponent, and he himself was drowned in his flight by the breaking down of a bridge as he attempted to cross the river Tiber.

516 Maxentius defeated and killed.

Constantine, in consequence of this victory, entering the city, disclaimed all praises which the senate and people were ready to offer; ascribing his success to a superior power. He even caused the cross, which he was said to have seen in the heavens, to be placed at the right of all his statues, with this inscription: "That under the influence of that victorious cross, Constantine had delivered the city from the yoke of tyrannical power, and had restored the senate and people of Rome to their ancient authority." He afterwards ordained, that no criminal should for the future suffer death by the cross; which had formerly been the most usual way of punishing slaves convicted of capital offences. Edicts were soon after issued, declaring that the Christians should be eased from all their grievances, and received into places of trust and authority. Thus the new religion was seen at once to prevail over the whole Roman empire; and as that enormous fabric had been built and guided upon pagan principles, it lost a great deal of its strength and coherence when those principles were thus at once subverted.

Things continued in this state for some time, Constantine all the while contributing what was in his power to the interest of religion, and the revival of learning, which had long been upon the decline, and was almost wholly extinct in the empire. But in the midst of these assiduities, the peace of the empire was again disturbed by the preparations of Maximin, who governed in the east, and who, desirous of a full participation of power, marched against Licinius with a very numerous army. In consequence of this step, after many conflicts, a general engagement ensued, in which Maximin suffered a total defeat; many of his troops were cut to pieces, and those that survived submitted to the conqueror. Maximin, however, having escaped the general carnage, once more put himself at the head of another army, resolving to try the fortune of the field; but death prevented his design. As he died by a very extraordinary kind of madness, the Christians, of whom he was the declared enemy, did not fail to ascribe his end to a judgment from heaven; but this was the age in which false judgments and false miracles made up the bulk of their uninstructive history.

517 Maximin's defeat and death.

Con-

Constantine and Licinius thus remaining undisputed possessors and partners in the empire, all things promised a peaceable continuance of friendship and power. However, it was soon found, that the same ambition that aimed after a part, would be content with nothing less than the whole. Pagan writers ascribe the rupture between these two potentates to Constantine; while the Christians, on the other hand, impute it wholly to Licinius. Both, perhaps, might have concurred: for Licinius is convicted of having persecuted Christianity, which was so highly favoured by his rival; and Constantine is known to have been the first to begin the preparations for an open rupture. Both sides exerted all their power to make opposition; and at the head of very formidable armies, came to an engagement near Cybalis, in Pannonia. Constantine, previous to the battle, in the midst of his Christian bishops, begged the assistance of Heaven; while Licinius, with equal zeal, called upon the pagan priests to intercede with the gods in his favour. Constantine, after an obstinate resistance from the enemy, became victorious; took their camp; and, after some time, compelled Licinius to sue for a truce, which was agreed upon. But this was of no long continuance; for soon after, the war breaking out afresh, and the rivals coming once more to a general engagement, it proved decisive. Licinius was entirely defeated, and pursued by Constantine into Nicomedia, where he surrendered himself up to the victor; having first obtained an oath that his life should be spared, and that he should be permitted to pass the remainder of his days in retirement. This, however, Constantine shortly after broke; for either fearing his designs, or finding him actually engaged in fresh conspiracies, he commanded him to be put to death, together with Martian his general, who some time before had been created Cæsar.

519 Licinius overcome and put to death.

Constantine being now sole monarch of the empire, without a rival to divide his power, or any person from whose claims he could have the least apprehensions, resolved to establish Christianity on so sure a basis, that no new regulations should shake it. He commanded that in all the provinces of the empire the orders of the bishops should be exactly obeyed; a privilege of which, in succeeding times, these fathers made but a very indifferent use. He called also a general council of these, to meet at Nicea, in order to repress the heresies that had already crept into the church, particularly that of Arius. To this place repaired about 318 bishops, besides a multitude of presbyters and deacons, together with the emperor himself; who all, to about 17, concurred in condemning the tenets of Arius; who, with his associates, was banished into a remote part of the empire.

Having thus restored universal tranquillity to the empire, he was not able to ward off the calamities of a more domestic nature. As the histories of that period are entirely at variance with each other, it is not easy to tell the motives which induced him to put his wife Fausta and his son Crispus to death. The most plausible account is this: Fausta the empress, who was a woman of great beauty, but of extravagant desires, had long, though secretly, loved Crispus, Constantine's son by a former wife. She had tried every art to inspire this youth with a mutual passion; but, finding her more distant efforts ineffectual, had even the confidence to make him an open confession of her desires. This produced an explanation, which was fatal to both. Crispus received her addresses with detestation; and she, to be revenged, accused him to the emperor. Constantine, fired at once with jealousy and rage, ordered him to die without a hearing; nor did his innocence appear till it was too late for redress. The only reparation therefore that remained, was the putting Fausta, the wicked instrument of his former cruelty, to death; which was accordingly executed upon her, together with some others who had been accomplices in her lascivious and treachery.

520 Constantine puts his wife and son to death.

But the private misfortunes of a few were not to be weighed against evils of a more general nature, which the Roman empire shortly after experienced. These arose from a measure which this emperor conceived and executed, of transferring the seat of the empire from Rome to Byzantium, or Constantinople, as it was afterwards called. Whatever might have been the reasons which induced him to this undertaking; whether it was because he was offended at some affronts he received at Rome, or that he supposed Constantinople more in the centre of the empire, or that he thought the eastern parts more required his presence, experience has shown that they were weak and groundless. The empire had long before been in the most declining state; but this in a great measure gave precipitation to its downfall. After this it never resumed its former splendor, but languished.

521 Transfers the seat of the empire to Constantinople.

His first design was to build a city which he might make the capital of the world; and for this purpose, he made choice of a situation at Chalcedon in Asia Minor; but we are told, that in laying out the ground-plan, an eagle caught up the line and flew with it over to Byzantium, a city which lay upon the opposite side of the Bosphorus. Here, therefore, it was thought expedient to fix the seat of the empire; and indeed nature seems to have formed it with all the conveniences and all the beauties which might induce power to make it the seat of residence. It was situated on a plain that rose gently from the water; it commanded that strait which unites the Mediterranean with the Euxine sea, and was furnished with all the advantages which the most indulgent climate could bestow. This city, therefore, he beautified with the most magnificent edifices; he divided it into 14 regions; built a capitol, an amphitheatre, many churches, and other public works; and having thus rendered it equal to the magnificence of his idea, he dedicated it in a very solemn manner to the God of martyrs; in about two years after, repairing thither with his whole court.

This removal produced no immediate alteration in the government of the empire; the inhabitants of Rome, tho' with reluctance, submitted to the change; nor was there for two or three years any disturbance in the state, until at length the Goths, finding that the Romans had withdrawn all their garrisons along the Danube, renewed their inroads, and ravaged the country with unheard-of cruelty. Constantine, however, soon repressed their incursions, and so straitened them, that near 100,000 of their number perished by cold and hunger. These and some other insurrections being happily suppressed, the government of the empire was divided as follows. Constantine, the emperor's eldest son, commanded in Gaul and the western provinces; Constantius governed Africa and Illyricum; and

Constans

Rome.

Conſtans ruled in Italy. Dalmatius, the emperor's brother, was ſent to defend thoſe parts that bordered upon the Goths; and Annibalianus, his nephew, had the charge of Cappadocia and Armenia Minor. This diviſion of the empire ſtill farther contributed to its downfall: for the united ſtrength of the ſtate being no longer brought to repreſs invaſions, the barbarians fought with ſuperior numbers; and conquered at laſt, though often defeated. Conſtantine, however, did not live to feel theſe calamities. The latter part of his reign was peaceful and ſplendid; ambaſſadors from the remoteſt Indies came to acknowledge his authority; the Perſians, who were ready for freſh inroads, upon finding him prepared to oppoſe, ſent humbly to deſire his friendſhip and forgivenneſs. He was above 60 years old, and had reigned above 30 years, when he found his health began to decline. To obviate the effects of his diſorder, which was an intermitting fever, he made uſe of the warm baths of the city; but receiving no benefit from thence, he removed for change of air to Helenopolis, a city which he had built to the memory of his mother. His diſorder increaſing, he changed again to Nicomedia; where finding himſelf without hopes of recovery, he cauſed himſelf to be baptized; and having ſoon after received the ſacrament, he expired, after a memorable and active reign of 32 years. This monarch's character is repreſented to us in very different lights: the Chriſtian writers of that time adorning it with every ſtrain of panegyric; the heathens, on the contrary, loading it with all the virulence of invective. He eſtabliſhed a religion that continues the bleſſing of mankind; but purſued a ſcheme of politics that deſtroyed the empire.

522 Death of Conſtantine.

From the time of Conſtantine to the diviſion of the empire between Valentinian and his brother Valens, the hiſtory of Rome is related under the article CONSTANTINOPLE, where alſo that of the eaſtern part is carried down to the final deſtruction of that city by the Turks. In the beginning of the reign of Valentinian, the province of Libya Tripolitana was grievouſly oppreſſed by the barbarians of the deſert, and almoſt equally ſo by Romanus its own governor. His conduct was ſo exceedingly oppreſſive, that the inhabitants ſent a deputation to Valentinian, complaining of their unhappy ſituation, and deſiring redreſs. Palladius was accordingly ſent to inquire into the ſtate of the province; but being gained over by Romanus, he made a falſe report to the emperor; and thus the unhappy province was left a prey to the mercileſs invaders and rapacious governor. During the reſt of this reign the barbarians continued their inroads into the empire; and among others, we find the Saxons now putting in for a ſhare of the ſpoils of the ruined empire: however, their army was at this time entirely cut off. At laſt Valentinian himſelf took the field againſt theſe northern barbarians; and entering the country of the Quadi, deſtroyed all with fire and ſword. The barbarians on this were fain to ſue for peace in a very humble manner; but Valentinian, falling into a great paſſion while ſpeaking to them, threatened to extirpate the whole nation at once. His fury on this occaſion produced an apoplexy, or ſome other mortal diſorder; for he ſuddenly fell down, and being conveyed by his attendants into his chamber, he was ſeized with violent convulſive fits and contortions of all his limbs, in the agonies of which he expired, in the year 375, the 55th of his age, and 12th of his reign.

523 Reign of Valentinian.

After the death of Valentinian, his ſon Gratian took upon him the imperial dignity; ſoon after becoming maſter of the whole empire by the death of Valens. The tranſactions of his reign, and thoſe of his partner Theodoſius, are related under the article CONSTANTINOPLE, n° 77—89. The death of Theodoſius gave the finiſhing ſtroke to the Roman affairs; his ſon Honorius, to whom he left the weſtern empire, being poſſeſſed of no abilities whatever, and indeed ſeeming to have been but very little removed from an idiot. The barbarians appear to have been abundantly ſenſible of the advantages offered them by the death of Theodoſius. He expired in the month of January; and before the acceſſion of ſpring, the Goths were in arms. The barbarian auxiliaries alſo now declared their independency; and along with their countrymen, furiouſly aſſailed the declining empire. The Goths were now headed by an experienced commander, their celebrated king Alaric; who would have proved formidable even in better times of the empire. He firſt over-ran Greece, which he accompliſhed without oppoſition, through the treachery of the governor, who commanded the troops that defended the paſs at Thermopylæ to retire at the approach of the enemy. Athens, Corinth, Argos, Sparta, yielded without reſiſtance; and the whole country was ravaged and deſtroyed by the blood-thirſty barbarians. At laſt, in the year 397, he was oppoſed by Stilicho, the general of Honorius, a man of great valour and experience in war. The Goths were defeated with great loſs, and afterwards beſieged in their camp; but through miſtake or negligence in the Roman commander, they were ſuffered to eſcape, and make themſelves maſters of the province of Epirus. Alaric then, having found means to conclude a treaty with the miniſters of Conſtantinople, Stilicho was obliged to retire.

524 Invaſion of the Goths under Alaric.

Not long after this, Alaric invaded Italy itſelf. The emperor, ſtruck with terror, would have abandoned the country and fled into Gaul: but this diſgraceful and pernicious meaſure was oppoſed by Stilicho; who propoſed to the court of Honorius, at that time at Milan, that if they would maintain their ground during his abſence, he would ſoon return with an army capable of oppoſing the barbarians. This being agreed to, Stilicho immediately ſet out for Rhætia, where the moſt conſiderable body of the Roman forces at that time was, and collected his troops with the utmoſt diligence. But in the mean time Honorius was in the greateſt danger; having been obliged to take refuge in the town of Aſta in Piedmont. To this place the Goths inſtantly laid ſiege, and a capitulation had been propoſed, when the drooping ſpirits of Honorius were at once revived by the arrival of Stilicho, whom he had ſo long expected. The Goths were now beſieged in their turn, and obliged to come to a deciſive battle at Pollentia. The engagement laſted the whole day; but at laſt the Goths were compelled to retreat. Their camp was inſtantly inveſted; their entrenchments forced with great ſlaughter; the wife of Alaric was taken, with all the wealth which had been amaſſed in plundering Greece; while many thouſands of Roman priſoners were releaſed from the moſt deplorable ſlavery. The victory, however, was not ſo deciſive but that Alaric

525 Goths defeated at Pollentia.

laric continued ſtill extremely formidable; and Stilicho choſe rather to conclude a treaty with him, and allow him an annual penſion, than to continue the war with vigour. Alaric, who was not very ſcrupulous in his obſervance of this treaty, in his retreat attempted to make himſelf maſter of the city of Verona: but Stilicho coming up with him near that place, gave him a terrible defeat, in which the loſs was little leſs than it had been at Pollentia; after which he effected a retreat out of Italy, but not without the greateſt difficulty and danger.

Italy being thus happily delivered, Honorius entered Rome in triumph, having Stilicho along with him in the triumphal chariot. On his entry into the city, he aboliſhed the ſhows of gladiators; which, though forbidden by Conſtantine, had been tolerated by his ſucceſſors, and even by Theodoſius himſelf, out of complaiſance to the people, who were beyond meaſure fond of that inhuman diverſion. However, ſoon after, the emperor was obliged to leave the metropolis and retire to Ravenna, in order to ſecure himſelf from the barbarians, who now broke in upon the empire on all ſides. Such multitudes now made their appearance, that it is not a little difficult to account for their ſudden emigration. Mr Gibbon accounts for it from a ſuppoſed revolution in the north-eaſtern parts of China. "The Chineſe annals (ſays he), as they have been interpreted by the learned induſtry of the preſent age, may be uſefully applied to reveal the ſecret and remote cauſes of the fall of the Roman empire. The extenſive territory to the north of the great wall was poſſeſſed, after the flight of the Huns, by the victorious Sienpi; who were ſometimes broken into independent tribes, and ſometimes re-united under a ſupreme chief; till at length ſtyling themſelves *Topa*, or "maſters of the earth," they acquired a more ſolid conſiſtence, and a more formidable power. The Topa ſoon compelled the paſtoral nations of the eaſtern deſert to acknowledge the ſuperiority of their arms; they invaded China in a period of weakneſs and inteſtine diſcord; and theſe fortunate Tartars, adopting the laws and manners of the vanquiſhed people, founded an imperial dynaſty, which reigned near 160 years over the northern provinces of the monarchy. Some generations before they aſcended the throne of China, one of the Topa princes had enliſted in his cavalry a ſlave of the name of *Moko*, renowned for his valour; but who was tempted, by the fear of puniſhment, to deſert his ſtandard, and to range the deſert at the head of 100 followers. This gang of robbers and outlaws ſwelled into a camp, a tribe, a numerous people, diſtinguiſhed by the appellation of *Geougen*; and their hereditary chieftains, the poſterity of Moko the ſlave, aſſumed their rank among the Scythian monarchs. The youth Toulun, the greateſt of his deſcendants, was exerciſed by thoſe misfortunes which are the ſchool of heroes. He bravely ſtruggled with adverſity, broke the imperious yoke of the Topa, and became the legiſlator of his nation, and the conqueror of Tartary. His troops were diſtributed into regular bands of 100 and of 1000 men; cowards were ſtoned to death; the moſt ſplendid honours were propoſed as the reward of valour; and Toulun, who had knowledge enough to deſpiſe the learning of China, adopted only ſuch arts and inſtitutions as were favourable to the military ſpirit of his government. His tents, which he removed in the winter ſeaſon to a more ſouthern latitude, were pitched during the ſummer on the fruitful banks of the Selinga. His conqueſts ſtretched from the Corea far beyond the river Irtiſh. He vanquiſhed, in the country to the north of the Caſpian ſea, the nation of the Huns; and the new title of *Khan*, or *Cagan*, expreſſed the fame and power which he derived from this memorable victory.

"The chain of events is interrupted, or rather is concealed, as it paſſes from the Volga to the Viſtula, through the dark interval which ſeparates the extreme limits of the Chineſe and of the Roman geography. Yet the temper of the barbarians, and the experience of ſucceſſive emigrations, ſufficiently declare, that the Huns, who were oppreſſed by the arms of the Geougen, ſoon withdrew from the preſence of an inſulting victor. The countries towards the Euxine were already occupied by their kindred tribes; and their haſty flight, which they ſoon converted into a bold attack, would more naturally be directed towards the rich and level plains through which the Viſtula gently flows into the Baltic ſea. The north muſt again have been alarmed and agitated by the invaſion of the Huns; and the nations who retreated before them muſt have preſſed with incumbent weight on the confines of Germany. The inhabitants of thoſe regions which the ancients have aſſigned to the Suevi, the Vandals, and the Burgundians, might embrace the reſolution of abandoning to the fugitives of Sarmatia their woods and moraſſes; or at leaſt of diſcharging their ſuperfluous numbers on the provinces of the Roman empire. About four years after the victorious Toulun had aſſumed the title of *khan of the Geougen*, another barbarian, the haughty Rhodogaſt, or Radagaiſus, marched from the northern extremities of Germany almoſt to the gates of Rome, and left the remains of his army to atchieve the deſtruction of the weſt. The Vandals, the Suevi, and the Burgundians, formed the ſtrength of this mighty hoſt: but the Alani, who had found an hoſpitable reception in their new ſeats, added their active cavalry to the heavy infantry of the Germans; and the Gothic adventurers crowded ſo eagerly to the ſtandard of Radagaiſus, that by ſome hiſtorians he has been ſtyled the *king of the Goths*. Twelve thouſand warriors, diſtinguiſhed above the vulgar by their noble birth or their valiant deeds, glittered in the van; and the whole multitude, which was not leſs than 200,000 fighting men, might be increaſed by the acceſſion of women, of children, and of ſlaves, to the amount of 400,000 perſons. This formidable emigration iſſued from the ſame coaſt of the Baltic which had poured forth the myriads of the Cimbri and Teutones to aſſault Rome and Italy in the vigour of the republic. After the departure of thoſe barbarians, their native country, which was marked by the veſtiges of their greatneſs, long ramparts, and gigantic moles, remained during ſome ages a vaſt and dreary ſolitude; till the human ſpecies was renewed by the powers of generation, and the vacancy was filled up by the influx of new inhabitants. The nations who now uſurp an extent of land which they are unable to cultivate, would ſoon be aſſiſted by the induſtrious poverty of their neighbours, if the government of Europe did not protect the claims of dominion and property.

528 Radagaiſus invades Italy with a numerous army.

"The correſpondence of nations was in that age ſo ma-

Rome.

imperfect and precarious, that the revolutions of the north might escape the knowledge of the court of Ravenna; till the dark cloud which was collected along the coast of the Baltic burst in thunder upon the banks of the Upper Danube. The emperor of the west, if his ministers disturbed his amusements by the news of the impending danger, was satisfied with being the occasion and the spectator of the war. The safety of Rome was intrusted to the counsels and the sword of Stilicho; but such was the feeble and exhausted state of the empire, that it was impossible to restore the fortifications of the Danube, or to prevent, by a vigorous effort, the invasion of the Germans. The hopes of the vigilant minister of Honorius were confined to the defence of Italy. He once more abandoned the provinces; recalled the troops; pressed the new levies, which were rigorously exacted, and pusillanimously eluded; employed the most efficacious means to arrest or allure the deserters; and offered the gift of freedom, and of two pieces of gold, to all the slaves who would enlist. By these efforts he painfully collected from the subjects of a great empire an army of 30,000 or 40,000 men; which, in the days of Scipio or Camillus, would have been instantly furnished by the free citizens of the territory of Rome. The 30 legions of Stilicho were reinforced by a large body of barbarian auxiliaries; the faithful Alani were personally attached to his service; and the troops of Huns and of Goths, who marched under the banners of their native princes Hulden and Sarus, were animated by interest and resentment to oppose the ambition of Radagaisus. The king of the confederate Germans passed, without resistance, the Alps, the Po, and the Appenine: leaving on one hand the inaccessible palace of Honorius, securely buried among the marshes of Ravenna; and on the other, the camp of Stilicho, who had fixed his head-quarters at Ticinum, or Pavia, but who seems to have avoided a decisive battle till he had assembled his distant forces. Many cities of Italy were pillaged, or destroyed; and the siege of Florence by Radagaisus is one of the earliest events in the history of that celebrated republic, whose firmness checked and delayed the unskilful fury of the barbarians. The senate and people trembled at their approach within 180 miles of Rome; and anxiously compared the danger which they had escaped with the new perils to which they were exposed. Alaric was a Christian and a soldier, the leader of a disciplined army; who understood the laws of war, who respected the sanctity of treaties, and who had familiarly conversed with the subjects of the empire in the same camps and the same churches. The savage Radagaisus was a stranger to the manners, the religion, and even the language, of the civilized nations of the south. The fierceness of his temper was exasperated by cruel superstition; and it was universally believed, that he had bound himself by a solemn vow to reduce the city into a heap of stones and ashes, and to sacrifice the most illustrious of the Roman senators on the altars of those gods who were appeased by human blood. The public danger, which should have reconciled all domestic animosities, displayed the incurable madness of religious faction. The oppressed votaries of Jupiter and Mercury respected, in the implacable enemy of Rome, the character of a devout pagan; loudly declared, that they were more apprehensive of the sacrifices than of the arms of Radagaisus; and secretly rejoiced in the calamities of their country, which condemned the faith of their Christian adversaries.

Rome.

529 Defeat and destroyed Stilicho.

"Florence was reduced to the last extremity; and the fainting courage of the citizens was supported only by the authority of St Ambrose, who had communicated in a dream the promise of a speedy deliverance. On a sudden they beheld from their walls the banners of Stilicho, who advanced with his united force to the relief of the faithful city; and who soon marked that fatal spot for the grave of the barbarian host. The apparent contradictions of those writers who variously relate the defeat of Radagaisus, may be reconciled without offering much violence to their respective testimonies. Orosius and Augustin, who were intimately connected by friendship and religion, ascribe this miraculous victory to the providence of God rather than to the valour of man. They strictly exclude every idea of chance, or even of bloodshed; and positively affirm, that the Romans, whose camp was the scene of plenty and idleness, enjoyed the distress of the barbarians, slowly expiring on the sharp and barren ridge of the hills of Fæsulæ, which rise above the city of Florence. Their extravagant assertion, that not a single soldier of the Christian army was killed, or even wounded, may be dismissed with silent contempt; but the rest of the narrative of Augustin and Orosius is consistent with the state of the war and the character of Stilicho. Conscious that he commanded the last army of the republic, his prudence would not expose it in the open field to the headstrong fury of the Germans. The method of surrounding the enemy with strong lines of circumvallation, which he had twice employed against the Gothic king, was repeated on a larger scale, and with more considerable effect. The examples of Cæsar must have been familiar to the most illiterate of the Roman warriors; and the fortifications of Dyrrhachium, which connected 24 castles by a perpetual ditch and rampart of 15 miles, afforded the model of an intrenchment which might confine and starve the most numerous host of barbarians. The Roman troops had less degenerated from the industry than from the valour of their ancestors; and if the servile and laborious work offended the pride of the soldiers, Tuscany could supply many thousand peasants, who would labour, though perhaps they would not fight, for the salvation of their native country.—The imprisoned multitude of horses and men was gradually destroyed by famine, rather than by the sword; but the Romans were exposed, during the progress of such an extensive work, to the frequent attacks of an impatient enemy. The despair of the hungry barbarians would precipitate them against the fortifications of Stilicho; the general might sometimes indulge the ardour of his brave auxiliaries, who eagerly pressed to assault the camp of the Germans; and these various incidents might produce the sharp and bloody conflicts which dignify the narrative of Zosimus, and the Chronicles of Prosper and Marcellinus. A seasonable supply of men and provisions had been introduced into the walls of Florence; and the famished host of Radagaisus was in its turn besieged. The proud monarch of so many warlike nations, after the loss of his bravest warriors, was reduced to confide either in the faith of a capitulation, or in the clemency of Stilicho. But the death of the royal captive, who was ignominiously beheaded, disgraced the triumph of Rome and of Christianity; and the

me. the ſhort delay of his execution was ſufficient to brand the conqueror with the guilt of cool and deliberate cruelty. The famiſhed Germans who eſcaped the fury of the auxiliaries were ſold as ſlaves, at the contemptible price of as many ſingle pieces of gold: but the difference of food and climate ſwept away great numbers of thoſe unhappy ſtrangers; and it was obſerved, that the inhuman purchaſers, inſtead of reaping the fruit of their labour, were ſoon obliged to add to it the expence of interring them. Stilicho informed the emperor and the ſenate of his ſucceſs; and deſerved a ſecond time the glorious title of *Deliverer of Italy*.

"The fame of the victory, and more eſpecially of the miracle, has encouraged a vain perſuaſion, that the whole army, or rather nation, of Germans, who migrated from the ſhores of the Baltic, miſerably periſhed under the walls of Florence. Such indeed was the fate of Radagaiſus himſelf, of his brave and faithful companions, and of more than one-third of the various multitude of Sueves and Vandals, of Alani and Burgundians, who adhered to the ſtandard of their general. The union of ſuch an army might excite our ſurpriſe, but the cauſes of ſeparation are obvious and forcible; they were the pride of birth, the inſolence of valour, the jealouſy of command, the impatience of ſubordination, and the obſtinate conflict of opinions, of intereſts, and of paſſions, among ſo many kings and warriors, who were untaught to yield or to obey. After the defeat of Radagaiſus, two parts of the German hoſt, which muſt have exceeded the number of 100,000 men, ſtill remained in arms between the Apennine and the Alps, or between the Alps and the Danube. It is uncertain whether they attempted to revenge the death of their general: but their irregular fury was ſoon diverted by the prudence and firmneſs of Stilicho, who oppoſed their march, and facilitated their retreat; who conſidered the ſafety of Rome and Italy as the great object of his care, and who ſacrificed with too much indifference the wealth and tranquillity of the diſtant provinces. The barbarians acquired, from the junction of ſome Pannonian deſerters, the knowledge of the country and of the roads; and the invaſion of Gaul, which Alaric had deſigned, was executed by the remains of the great army of Radagaiſus.

530 count of remain- of the ny of dagaiſus.

"Yet if they expected to derive any aſſiſtance from the tribes of Germany who inhabited the banks of the Rhine, their hopes were diſappointed. The Alemanni preſerved a ſtate of inactive neutrality; and the Franks diſtinguiſhed their zeal and courage in the defence of the empire. In the rapid progreſs down the Rhine, which was the firſt act of the adminiſtration of Stilicho, he had applied himſelf with peculiar attention to ſecure the alliance of the warlike Franks, and to remove the irreconcileable enemies of peace and of the republic. Marcomir, one of their kings, was publicly convicted before the tribunal of the Roman magiſtrate of violating the faith of treaties. He was ſentenced to a mild, but diſtant exile, in the province of Tuſcany; and this degradation of the regal dignity was ſo far from exciting the reſentment of his ſubjects, that they puniſhed with death the turbulent Sunno, who attempted to revenge his brother, and maintained a dutiful allegiance to the princes who were eſtabliſhed on the throne by the choice of Stilicho. When the limits of Gaul and Germany were ſhaken by the northern emigration, the Franks bravely encountered the ſingle force of the Vandals; who, regardleſs of the leſſons of adverſity, had again ſeparated their troops from the ſtandard of their barbarian allies. They paid the penalty of their raſhneſs; and 20,000 Vandals, with their king Godigiſclus, were ſlain in the field of battle. The whole people muſt have been extirpated, if the ſquadrons of the Alani, advancing to their relief, had not trampled down the infantry of the Franks; who, after an honourable reſiſtance, were compelled to relinquiſh the unequal conteſt. The victorious confederates purſued their march; and on the laſt day of the year, in a ſeaſon when the waters of the Rhine were moſt probably frozen, they entered without oppoſition the defenceleſs provinces of Gaul. This memorable paſſage of the Suevi, the Vandals, the Alani, and the Burgundians, who never afterwards retreated, may be conſidered as the fall of the Roman empire in the countries beyond the Alps; and the barriers, which had ſo long ſeparated the ſavage and the civilized nations of the earth, were from that fatal moment levelled with the ground.

Rome.

531 The Vandals defeated by the Franks.

"While the peace of Germany was ſecured by the attachment of the Franks and the neutrality of the Alemanni, the ſubjects of Rome, unconſcious of their approaching calamities, enjoyed a ſtate of quiet and proſperity, which had ſeldom bleſſed the frontiers of Gaul. Their flocks and herds were permitted to graze in the paſtures of the barbarians; their huntſmen penetrated, without fear or danger, into the darkeſt receſſes of the Hercynian wood. The banks of the Rhine were crowned, like thoſe of the Tiber, with elegant houſes and well cultivated farms; and if a poet deſcended the river, he might expreſs his doubt on which ſide was ſituated the territory of the Romans. This ſcene of peace and plenty was ſuddenly changed into a deſert, and the proſpect of the ſmoking ruins could alone diſtinguiſh the ſolitude of nature from the deſolation of man. The flouriſhing city of Mentz was ſurpriſed and deſtroyed; and many thouſand Chriſtians were inhumanly maſſacred in the church. Worms periſhed after a long and obſtinate ſiege: Straſburg, Spires, Rheims, Tournay, Aras, Amiens, experienced the cruel oppreſſion of the German yoke; and the conſuming flames of war ſpread from the banks of the Rhine over the greateſt part of the 17 provinces of Gaul. That rich and extenſive country, as far as the Ocean, the Alps, and the Pyrenees, was delivered to the barbarians, who drove before them, in a promiſcuous crowd, the biſhop, the ſenator, and the virgin, laden with the ſpoils of their houſes and altars."

532 Gaul ravaged by the barbarians.

In the midſt of theſe calamities a revolt happened in Britain, where one Conſtantine, a common ſoldier, was raiſed to the imperial throne, merely for the ſake of his name. However, he ſeems to have been a man of conſiderable abilities, and by no means unfit for the high dignity to which he was raiſed. He governed Britain with great proſperity; paſſed over into Gaul and Spain, the inhabitants of which ſubmitted without oppoſition, being glad of any protector whatever from the barbarians. Honorius, incapable of defending the empire, or repreſſing the revolt, was obliged to acknowledge him for his partner in the empire. In the mean time, Alaric, with his Goths, threatened a new invaſion unleſs he was paid a certain ſum of money. Stilicho is ſaid to have occaſioned this demand, and to have inſiſted

533 Revolt of Conſtantine, whom Honorius acknowledges as his partner in the empire.

Rome.

534 Stilicho disgraced and put to death.

ed upon ſending him the money he demanded; and this was the cauſe of his diſgrace and death, which happened ſoon after, with the extirpation of his family and friends. Nay, ſuch was the general hatred of this unfortunate miniſter, that the ſoldiers quartered in the cities of Italy no ſooner heard of his death, than they murdered the wives and children of the barbarians whom Stilicho had taken into the ſervice of Honorius. The enraged huſbands went over to Alaric, who made a new demand of money; which not being readily ſent, he laid ſiege to Rome, and would have taken it, had not the emperor complied with his demand. The ranſom of the city was 5000 pounds of gold, 30,000 of ſilver, 4000 ſilk garments, 3000 ſkins dyed purple, and 3000 pounds of pepper. On this occaſion the heathen temples were ſtripped of their remaining ornaments, and among others of the ſtatue of Valour; which the pagans did not fail to interpret as a preſage of the ſpeedy ruin of the ſtate.

Alaric having received this treaſure, departed for a ſhort time: but ſoon after he again blocked up the city with a numerous army; and again an accommodation with Honorius was ſet on foot. However, for ſome reaſons which do not clearly appear, the treaty was broken off, Rome was a third time beſieged, and at laſt taken and plundered. Alaric, when upon the point of breaking into the city, addreſſing his ſoldiers, told them, that all the wealth in it was theirs, and therefore he gave them full liberty to ſeize it; but at the ſame time he ſtrictly enjoined them to ſhed the blood of none but ſuch as they ſhould find in arms; and above all, to ſpare thoſe who ſhould take ſanctuary in the holy places, eſpecially in the churches of the apoſtles St Peter and St Paul; which he named, becauſe they were moſt ſpacious, and conſequently capable of affording an aſylum to great numbers of people. Having given theſe orders, he abandoned the city to his Goths, who treated it no better, according to St Jerome, than the Greeks are ſaid to have treated ancient Troy; for after having plundered it for the ſpace of three, or, as others will have it, of ſix days, they ſet fire to it in ſeveral places; ſo that the ſtately palace of Salluſt, and many other magnificent buildings, were reduced to aſhes; nay, Procopius writes, that there was not in the whole city one houſe left entire; and both St Jerome and Philoſtorgius aſſert, that the great metropolis of the empire was reduced to an heap of aſhes and ruins. Though many of the Goths, purſuant to the orders of their general, refrained from ſhedding the blood of ſuch as made no reſiſtance; yet others, more cruel and blood-thirſty, maſſacred all they met: ſo that the ſtreets in ſome quarters of the city were ſeen covered with dead bodies, and ſwimming in blood. However, not the leaſt injury was offered to thoſe who fled to the churches; nay, the Goths themſelves conveyed thither, as to places of ſafety, ſuch as they were deſirous ſhould be ſpared. Many of the ſtatues of the gods that had been left entire by the emperors as excellent pieces of art, were on this occaſion deſtroyed, either by the Goths, who, though moſtly Arians, were zealous Chriſtians, or by a dreadful ſtorm of thunder and lightning which fell at the ſame time upon the city, as if it had been ſent on purpoſe to complete with them the deſtruction of idolatry, and aboliſh the ſmall remains of pagan ſuperſtition. However, notwithſtanding theſe accounts, ſome affirm that the city ſuffered very little at this time, not ſo much as when it was taken by Charles V.

535 Rome taken and plundered by Alaric.

Alaric did not long ſurvive the taking of Rome, being cut off by a violent fit of ſickneſs in the neighbourhood of Rhegium. After his death the affairs of Honorius ſeemed a little to revive by the defeat and death of Conſtantine and ſome other uſurpers; but the provinces of Gaul, Britain, and Spain, were now almoſt entirely occupied by barbarians; in which ſtate they continued till the death of Honorius, which happened in the year 423, after an unfortunate reign of 28 years.

536 Death of that conqueror.

After ſome uſurpations which took place on the death of Honorius, his nephew Valentinian III. was declared emperor of the weſt, and his mother Placidia regent during his minority. He was ſcarce ſeated on the throne, when the empire was attacked by the Huns under the celebrated Attila. The Romans, however, wretched and degenerate as they were, had they been unanimous, would even yet have been ſuperior to their enemies. The empreſs then had two celebrated generals, Bonifacius and Aetius; who by their union might have ſaved the empire: but unhappily, through the treachery of Aetius, Bonifacius was obliged to revolt; and a civil war enſued, in which he loſt his life. Aetius, however, notwithſtanding his treachery, was pardoned, and put at the head of the forces of the empire. He defended it againſt Attila with great ſpirit and ſucceſs, notwithſtanding the deplorable ſituation of affairs, till he was murdered by Valentinian with his own hand, on a ſuſpicion that he aſpired to the empire. But in the mean time the provinces, except Italy itſelf, were totally over-run by the barbarians. Genſeric king of the Vandals ravaged Africa and Sicily; the Goths, Suevians, Burgundians, &c. had taken poſſeſſion of Gaul and Spain; and the Britons were oppreſſed by the Scots and Picts, ſo that they were obliged to call in the Saxons to their aſſiſtance, as is related under the article ENGLAND. In the year 455, Valentinian was murdered by one Maximus, whoſe wife he had raviſhed. Maximus immediately aſſumed the empire; but felt ſuch violent anxieties, that he deſigned to reſign it and fly out of Italy, in order to enjoy the quiet of a private life. However, being diſſuaded from this by his friends, and his own wife dying ſoon after, he forced the empreſs Eudoxia to marry him. Eudoxia, who had tenderly loved Valentinian, provoked beyond meaſure at being married to his murderer, invited Genſeric king of the Vandals into Italy. This proved a moſt fatal ſcheme: for Genſeric immediately appeared before Rome; a violent tumult enſued, in which Maximus loſt his life; and the city was taken and plundered by Genſeric, who carried off what had been left by the Goths. A veſſel was loaded with coſtly ſtatues; half the covering of the capitol, which was of braſs plated over with gold; ſacred veſſels enriched with precious ſtones; and thoſe which had been taken by Titus out of the temple of Jeruſalem; all of which were loſt with the veſſel in its paſſage to Africa.

537 Rome taken and plundered by Genſeric.

Nothing could now be more deplorable than the ſtate of the Roman affairs: nevertheleſs, the empire continued to exiſt for ſome years longer; and even ſeemed to revive for a little under Marjorianus, who was declared emperor in 458. He was a man of great courage, and poſſeſſed of many other excellent qualities. He

defeated

me. defeated the Vandals, and drove them out of Italy. With great labour he fitted out a fleet, of which the Romans had been long deſtitute. With this he deſigned to paſs over into Africa; but, it being ſurpriſed and burnt by the enemy, he himſelf was ſoon after murdered by one Ricimer a Goth, who had long governed every thing with an abſolute ſway. After the death of Marjorianus, one Anthemius was raiſed to the empire: but beginning to counteract Ricimer, the latter openly revolted, beſieged and took Rome; where he committed innumerable cruelties, among the reſt putting to death the unhappy emperor Anthemius, and raiſing one Olybius to the empire. The tranſactions of his reign were very few, as he died ſoon after his acceſſion. On his death, one Glycerius uſurped the empire. He was depoſed in 474, and one Julius Nepos had the name of *emperor*. He was driven out the next year by his general Oreſtes, who cauſed his ſon Auguſtus or Auguſtulus to be proclaimed emperor. But the following year, 476, the barbarians who ſerved in the Roman armies, and were diſtinguiſhed with the title of allies, demanded, as a reward for their ſervices, the third part of the lands in Italy; pretending, that the whole country, which they had ſo often defended, belonged of right to them. As Oreſtes refuſed to comply with this inſolent demand, they reſolved to do themſelves juſtice, as they called it; and, openly revolting, choſe one Odoacer for their leader. Odoacer was, according to Ennodius, meanly born, and only a private man in the guards of the emperor Auguſtulus, when the barbarians revolting, choſe him for their leader. However, he is ſaid to have been a man of uncommon parts, equally capable of commanding an army and governing a ſtate. Having left his own country when he was yet very young, to ſerve in Italy, as he was of a ſtature remarkably tall, he was admitted among the emperor's guards, and continued in that ſtation till the preſent year; when, putting himſelf at the head of the barbarians in the Roman pay, who, though of different nations, had, with one conſent, choſen him for their leader, he marched againſt Oreſtes and his ſon Auguſtulus, who ſtill refuſed to give them any ſhare of the lands in Italy.

538 by ner.

539 Total fall of the empire.

As the Roman troops were inferior, both in number and valour, to the barbarians, Oreſtes took refuge in Pavia, at that time one of the beſt fortified cities in Italy: but Odoacer, inveſting the place without loſs of time, took it ſoon after by aſſault, gave it up to be plundered by the ſoldiers, and then ſet fire to it; which reduced moſt of the houſes, and two churches, to aſhes. Oreſtes was taken priſoner, and brought to Odoacer, who carried him to Placentia, and there cauſed him to be put to death, on the 28th of Auguſt, the day on which he had driven Nepos out of Ravenna, and obliged him to abandon the empire. From Placentia, Odoacer marched ſtraight to Ravenna, where he found Paul, the brother of Oreſtes, and the young emperor Auguſtulus. The former he immediately put to death; but ſparing Auguſtulus, in conſideration of his youth, he ſtripped him of the enſigns of the imperial dignity, and confined him to Lucullanum, a caſtle in Campania; where he was, by Odoacer's orders, treated with great humanity, and allowed an handſome maintenance to ſupport himſelf and his relations. Rome readily ſubmitted to the conqueror, who immediately cauſed himſelf to be proclaimed king of Italy, but would not aſſume the purple, or any other mark of the imperial dignity. Thus failed the very name of an empire in the Weſt. Britain had been long ſince abandoned by the Romans; Spain was held by the Goths and Suevans; Africa, by the Vandals; the Burgundians, Goths, Franks, and Alans, had erected ſeveral tetrarchies in Gaul; at length Italy itſelf, with its proud metropolis, which for ſo many ages had given law to the reſt of the world, was enſlaved by a contemptible barbarian, whoſe family, country, and nation, are not well known to this day.

Rome.

From this time, Rome has ceaſed to be the capital of an empire; the territories of the pope, to whom the city is now ſubject, being inconſiderable. The origin of the pope's temporal power, and the revolutions of Italy, are related under the article ITALY; and a ſketch of the ſpiritual uſurpations of the popes may be ſeen under the articles HISTORY, ſect. ii. and REFORMATION; and likewiſe under the various hiſtorical articles as they occur in the courſe of this work.

540 Deſcription of modern Rome.

It is thought that the walls of modern Rome take in nearly the ſame extent of ground as the ancient; but the difference between the number of buildings on this ſpot is very great, one half of modern Rome lying waſte, or occupied with gardens, fields, meadows, and vineyards. One may walk quite round the city in three or four hours at moſt, the circumference being reckoned about 13 Italian miles. With regard to the number of the inhabitants, modern Rome is alſo greatly inferior to the ancient: for, in 1709, the whole of theſe amounted only to 138,568; among which were 40 biſhops, 2686 prieſts, 3559 monks, 1814 nuns, 393 courteſans, about 8000 or 9000 Jews, and 14 Moors. In 1714, the number was increaſed to 143,000. In external ſplendor, and the beauty of its temples and palaces, modern Rome is thought by the moſt judicious travellers to excel the ancient. There was nothing in ancient Rome to be compared with St Peter's church in the modern. That Rome was able to recover itſelf after ſo many calamities and devaſtations, will not be matter of ſurpriſe, if we conſider the prodigious ſums that it has ſo long annually drawn from all countries of the Popiſh perſuaſion. Theſe ſums, though ſtill conſiderable, have been continually decreaſing ſince the Reformation. The ſurface of the ground on which Rome was originally founded is ſurpriſingly altered. At preſent it is difficult to diſtinguiſh the ſeven hills on which it was firſt built, the low grounds being almoſt filled up with the ruins of the ancient ſtreets and houſes, and the great quantities of earth waſhed down from the hills by the violence of the rains. Anciently the ſuburbs extended a vaſt way on all ſides, and made the city appear almoſt boundleſs; but it is quite otherwiſe now, the country about Rome being almost a deſert. To this and other cauſes it is owing, that the air is none of the moſt wholeſome, eſpecially during the ſummer heats, when few go abroad in the day-time. No city at preſent in the world ſurpaſſes, or indeed equals, Rome, for the multiplicity of fine fountains, noble edifices, antiquities, curioſities, paintings, ſtatues, and ſculptures. The city ſtands on the Tiber, 10 miles from the Tuſcan ſea, 380 from Vienna, 560 from Paris, 740 from Amſterdam, 810 from London, and 900 from Madrid. The Tiber is ſubject to frequent

quent inundations, by which it often does great damage. A ſmall part of the city is ſeparated from the other by the river, and is therefore called *Traveſtere*, or beyond the Tiber. There are ſeveral bridges over the river, a great number of towers on the walls, and 20 gates. The remains of Rome's ancient grandeur conſiſt of ſtatues, coloſſuſes, temples, palaces, theatres, naumachias, triumphal arches, circuſes, columns, obeliſks, fountains, aqueducts, mauſoleums, thermæ or hot-baths, and other ſtructures. Of modern buildings, the ſplendid churches and palaces are the moſt remarkable. Mr Addiſon ſays, it is almoſt impoſſible for a man to form in his imagination ſuch beautiful and glorious ſcenes as are to be met with in ſeveral of the Roman churches and chapels. This gentleman tells us alſo, that no part of the antiquities of Rome pleaſed him ſo much as the ancient ſtatues, of which there is ſtill an incredible variety. Next to the ſtatues, he ſays, there is nothing more ſurpriſing than the amazing variety of ancient pillars of ſo many kinds of marble. Rome is ſaid to be well paved; but not well lighted, nor kept very clean. Two-thirds of the houſes are the property of the churches, convents, and alms houſes. Proteſtants are not obliged to kneel at the elevation of the hoſt, or at meeting the euchariſt in the ſtreets; and they may have fleſh-meat always at the inns, even during Lent. Here are many academies for promoting arts and ſciences, beſides the univerſity. The carnival here is only during the eight days before Lent, and there are no ſuch ſcenes of riot as at Venice: proſtitutes, however, are publicly tolerated. To maintain good order, there is a body of 300 Sbirri, or Halberdeers, under their barigella, or colonel. There is little or no trade carried on in Rome, but a vaſt deal of money is ſpent by travellers and other ſtrangers. The principal modern ſtructures are the church of St Peter, and the other churches; the aqueducts and fountains; the Vatican, and the other palaces; the Campidolio, where the Roman ſenate reſides, &c. The principal remains of antiquity are the pila miliaria of fine marble; the equeſtrian braſs ſtatue of Marcus Aurelius Antoninus; the marble monument of the emperor Alexander Severus; marble buſts of the emperors and their conſorts; three brick arches of the temple of Peace, built by the emperor Veſpaſian; the triumphal arch of Septimus Severus and of Gallienus; the circus of Antoninus Caracalla; ſome parts of the cloaca-maxima; the columna Antonina, repreſenting the principal actions of Marcus Aurelius; the columna Trajani, or Trajan's pillar; ſome fragments of the curia, or palace of Antoninus Pius, and of Nerva's forum; the mauſolæum of Auguſtus, in the Strada Pontifici; the remains of the emperor Severus's tomb without St John's gate; the pyramid of Caius Ceſtus near St Paul's gate; the porphyry coffin of St Helen, and the original ſtatue of Conſtantine the Great, in the church of St John of Lateran: a font of oriental granite, in the chapel of St Giovanni in fonte, ſaid to have been erected by Conſtantine the Great; an Egyptian obeliſk near the church of St Maria Maggiore; the ſtately remains of Dioclesian's baths; the celebrated Pantheon; the obeliſks of Seſoſtris and Auguſtus by the Clementine college; the church of St Paul fuori della Mura, ſaid to have been built by Conſtantine the Great; the Farneſe Hercules, in white marble, of a Coloſſian ſize and exquiſite workmanſhip, in a court of the Farneſe palace, and an admirable group cut out of one block of marble, in another court of the ſame palace. Beſides theſe there are a great many more, which our bounds will not allow us to take any further notice of. Here is a great number of rich and well-regulated hoſpitals. Near the church of St Sebaſtiano alle Catacombe, are the moſt ſpacious of the catacombs, where the Chriſtians, who never burned their dead, and ſuch of the Pagan Romans as could not afford the expence of burning, were buried. Along the Via Appia, without St Sebaſtian's gate, were the tombs of the principal families of Rome, which at preſent are uſed for cellars and ſtore-houſes by the gardeners and vine-dreſſers.

ROMNEY, a town of Kent in England. It is one of the cinque-port towns, and is ſeated on a marſh of the ſame name, famous for feeding cattle; but the air is very unhealthy. It was once a large and populous place, but the retiring of the ſea has reduced it very much; however, it ſends two members to parliament.

ROMORENTIN, is a ſmall town ſituated on the river Saudre, in the territory of Blaſois in France, famous for its woollen manufacture. It is ſaid to be a very ancient place; and the inhabitants pretend that Cæſar built a tower here, of which there are ſtill ſome conſiderable remains. They have a manufacture of ſerge and cloth, which is uſed for the clothing of the troops.

ROMPEE, or Rompu, in heraldry, is applied to ordinaries that are repreſented as broken; and to chevrons, bends, or the like, whoſe upper points are cut off.

ROMULUS, the founder and firſt king of Rome. See Rome, n° 14.

RONCIGLIONE, is a town of Italy, in the Eccleſiaſtic State, and Patrimony of St Peter, in E. Long. 13. N. Lat. 42. 12. It is a ſmall place, but had a pretty good trade, and was one of the richeſt in the province, while it belonged to the dukes of Parma, which was till 1649, when pope Innocent X. became maſter of it, and it has ever ſince continued in the poſſeſſion of his ſucceſſors.

RONDELETIA, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The corolla is funnel-ſhaped; the capſule bilocular, inferior, and polyſpermous, roundiſh and crowned.

RONA, one of the Hebrides iſlands, is reckoned about 20 leagues diſtant from the north-eaſt point of Neſs in Lewis—about a mile long, and half a mile broad. It has a hill in the weſt part, and is only viſible from Lewis in a fair ſummer's day. There is a chapel in the iſland dedicated to St Ronan, fenced with a ſtone wall round it. This church the natives take care to keep very neat and clean, and ſweep it every day. There is an altar in it, on which there lies a big plank of wood about 10 feet long. Every foot has a hole in it, and in every hole is a ſtone, to which the natives aſcribe ſeveral virtues; one of them is ſingular (as they ſay) for promoting ſpeedy delivery to a woman in travel. The inhabitants are extremely ignorant, and very ſuperſtitious. See *Martin's Deſcription*.

RON-

RONSARD (Peter de) was born at the castle of Poissoniere in Vendomois in 1524. He was descended of a noble family, and was educated at Paris in the college of Navarre. Academical pursuits not suiting his genius, he left college, and became page to the duke of Orleans, who resigned him to James Stuart, king of Scots, married to Magdelene of France. Ronsard continued in Scotland with King James upwards of two years, and afterwards went to France, where he was employed by the duke of Orleans in several negociations. He accompanied Lazarus de Baif to the diet of Spires. Having from the conversation of this learned man imbibed a passion for the belles-lettres, he studied the Greek language with Baif's son under Dorat. It is reported of Ronsard, that his practice was to study till two o'clock in the morning; and when he went to bed, to awaken Baif, who resumed his place. The muses possessed in his eyes an infinity of charms; and he cultivated them with such success, that he acquired the appellation of the *Prince of the Poets* of his time. Henry II. Francis II. Charles IX. and Henry III. loaded him with favours. Having gained the first prize of the *Jeux Floraux*, they thought the reward promised below the merit of the work, and the reputation of the poet. The city of Toulouse caused a Minerva of massy silver of considerable value to be made and sent to him. This present was accompanied with a decree, declaring him *The French Poet*, by way of distinction. Ronsard afterwards made a present of his Minerva to Henry II. and this monarch appeared as much elated with this mark of the poet's esteem for him, as the poet himself could have been had he received the present from his sovereign. Mary, the beautiful and unfortunate queen of Scots, who was equally sensible of his merit with the Toulonese, gave him a very rich set of table-plate, among which was a vessel in the form of a rose-bush, representing Mount Parnassus, on the top of which was a Pegasus with this inscription:

A Ronsard, l'Apollon de la source des muses.

From the above two anecdotes of him may easily be inferred the reputation in which he was held, and which he continued to keep till Malherbe appeared. His works possess both invention and genius; but his affectation of everywhere thrusting in his learning, and of forming words from the Greek, the Latin, and the different provincialisms of France, has rendered his versification disagreeable and often unintelligible.

Ronsard, dit Despréaux, par une autre méthode,
Reglant tout, brouilla tout, fit un art à sa mode;
Et toutefois long temps eut un heureux destin;
Mais sa muse, en François parlant Grec et Latin,
Vit dans l'âge suivant, par un retour grotesque,
Tomber de ses grands mots le style pédantesque.

He wrote hymns, odes, a poem called the *Franciad*, eclogues, epigrams, sonnets, &c. In his odes he takes bombast for poetical raptures. He wishes to imitate Pindar; and by labouring too much for lofty expressions, he loses himself in a cloud of words. He is obscure and harsh to the last degree: faults which he might easily have avoided by studying the works of Marot, who had before he wrote brought French poetry very near to perfection. "Marot's turn and style of composition are such (says Bruyere), that he seems to have written after Ronsard: there is hardly any difference, except in a few words, between Marot and us. Ronsard, and the authors his contemporaries, did more disservice than good to style: they checked its course in the advances it was making towards perfection, and had like to have prevented its ever attaining it. It is surprising that Marot, whose works are so natural and easy, did not make Ronsard, who was fired with the strong enthusiasm of poetry, a greater poet than either Ronsard or Marot." But what could be expected from a man who had so little taste, that he called Marot's works 'a dunghill, from which rich grains of gold by industrious working might be drawn?' As a specimen of our author's intolerable and ridiculous affectation of learning, which we have already censured, Boileau cites the following verse of Ronsard to his mistress: *Estes-vous pas ma seule entelechie?* 'are not you my only entelechia?' Now *entelechia* is a word peculiar to the peripatetic philosophy, the sense of which does not appear to have ever been fixed. Hermalaus Barbarus is said to have had recourse to the devil, in order to know the meaning of this new term used by Aristotle; but he did not gain the information he wanted, the devil, probably to conceal his ignorance, speaking in a faint and whispering sort of voice. What could Ronsard's mistress therefore, or even Ronsard himself, know of it; and, what can excuse in a man of real genius the low affectation of using a learned term, because in truth nobody could understand it. He has, however, some pieces not destitute of real merit; and there are perhaps few effusions of the French muse more truly poetical than his *Four Seasons of the Year*, where a most fertile imagination displays all its riches.

Ronsard, though it is doubtful whether he ever was in orders, held several benefices in commendam; and he died at Saint-Cosme-les-Tours, one of these, December 27. 1585, being then 61 years of age. He appeared more ridiculous as a man than as a poet: he was particularly vain. He talked of nothing but his family and his alliances with crowned heads. In his panegyrics, which he addresses to himself without any ceremony, he has the vanity to pretend, that from *Ronsard* is derived the word *Rossignol*, to denote both a musician and a poet together. He was born the year after the defeat of Francis I. before Pavia: "Just as heaven (said he) wished to indemnify France for the losses it had sustained at that place." He blushed not to tell of his intrigues. All the ladies sought after him; but he never said that any of them gave him a denial of their favours. His immoderate indulgence in pleasure, joined to his literary labours, served to hasten his old age. In his 50th year he was weak and valetudinary, and subject to attacks of the gout. He retained his wit, his vivacity, and his readiness at poetic composition, to his last moments. Like all those who aspire after public esteem, he had a great number of admirers and some enemies. Though Melin de Saint-Gelais railed at him continually, Rabelais was the person whom he most dreaded. He took always care to inform himself where that jovial rector of Meudon went, that he might not be found in the same place with him. It is reported, that Voltaire acted a similar part with regard to Peron*, of whose extemporary sallies and *bon mots* he was much afraid.

* See *Fr*

Roof, Rool.

afraid. Ronsard's poems appeared in 1567 at Paris in 6 vols 4to, and in 1604 in 10 vols 12mo.

ROOD, a quantity of land equal to 40 square perches, or the fourth part of an acre.

1 Definition.

ROOF, expresses the covering of a house or building, by which its inhabitants or contents are protected from the injuries of the weather. It is perhaps the essential part of a house, and is frequently used to express the whole. To *come under a person's roof*, is to enjoy his protection and society, to dwell with him. *Tectum* was used in the same sense by the Romans. To be within our walls rather expresses the being in our possession: a roof therefore is not only an essential part of a house, but it even seems to be its characteristic feature. The Greeks, who have perhaps excelled all nations in taste, and who have given the most perfect model of architectonic ordonnance within a certain limit, never erected a building which did not exhibit this part in the distinctest manner; and though they borrowed much of their model from the orientals, as will be evident to any who compares their architecture with the ruins of Persepolis, and of the tombs in the mountains of Sciras, they added that form of roof which their own climate taught them was necessary for sheltering them from the rains. The roofs in Persia and Arabia are flat, but those of Greece are without exception sloping. It seems therefore a gross violation of the true principles of taste in architecture (at least in the regions of Europe), to take away or to hide the roof of a house; and it must be ascribed to that rage for novelty which is so powerful in the minds of the rich. Our ancestors seemed to be of a very different opinion, and turned their attention to the ornamenting of their roofs as much as any other part of a building. They showed them in the most conspicuous manner, running them up to a great height, broke them into a thousand fanciful shapes, and stuck them full of highly dressed windows. We laugh at this, and call it Gothic and clumsy; and our great architects, not to offend any more in this way, conceal the roof altogether by parapets, balustrades, and other contrivances. Our forefathers certainly did offend against the maxims of true taste, when they enriched a part of a house with marks of elegant habitation, which every spectator must know to be a cumbersome garret: but their successors no less offend, who take off the cover of the house altogether, and make it impossible to know whether it is not a mere skreen or colonnade we are looking at.

2 Strictures on various kinds of roofs.

3 Error of Sir Christopher Wren in the roof of St Paul's London.

We cannot help thinking that Sir Christopher Wren erred when he so industriously concealed the roof of St Paul's church in London. The whole of the upper order is a mere screen. Such a quantity of wall would have been intolerably offensive, had he not given it some appearance of habitation by the mock windows or niches. Even in this state it is gloomy, and it is odd, and is a puzzle to every spectator—There should be no puzzle in the design of a building any more than in a discourse. It has been said that the double roof of our great churches which have aisles is an incongruity, looking like a house standing on the top of another house. But there is not the least occasion for such a thought. We know that the aisle is a shed, a cloister. Suppose only that the lower roof or shed is hidden by a balustrade, it then becomes a portico, against which the connoisseur has no objection: yet there is no difference; for the portico must have a cover, otherwise it is neither a shed, cloister, nor portico, any more than a building without a roof is a house. A house without a visible roof is like a man abroad without his hat; and we may add, that the whim of concealing the chimneys, now so fashionable, changes a house to a barn or storehouse. A house should not be a copy of any thing. It has a title to be an original; and a screen-like house and a pillar-like candlestick are similar solecisms in taste.

4 Little attention paid by architect to this part of a building.

The architect is anxious to present a fine object, and a very simple outline discusses all his concerns with the roof. He leaves it to the carpenter, whom he frequently puzzles (by his arrangements) with coverings almost impossible to execute. Indeed it is seldom that the idea of a roof is admitted by him into his great compositions; or if he does introduce it, it is from mere affectation, and we may say pedantry. A pediment is frequently stuck up in the middle of a grand front, in a situation where a roof cannot perform its office; for the rain that is supposed to flow down its sides must be received on the top of the level buildings which flank it. This is a manifest incongruity. The tops of dressed windows, trifling porches, and sometimes a projecting portico, are the only situations in which we see the figure of a roof correspond with its office. Having thus lost sight of the principle, it is not surprising that the draughtsman (for he should not be called architect) runs into every whim: and we see pediment within pediment, a round pediment, a hollow pediment, and the greatest of all absurdities, a broken pediment. Nothing could ever reconcile us to the sight of a man with a hat without its crown, because we cannot overlook the use of a hat.

5 Advantage of a high pitched roof.

But when one builds a house, ornament alone will not do. We must have a cover; and the enormous expence and other great inconveniences which attend the concealment of this cover by parapets, balustrades, and screens, have obliged architects to consider the pent roof as admissible, and to regulate its form. Any man of sense, not under the influence of prejudice, would be determined in this by its fitness for answering its purpose. A high pitched roof will undoubtedly shoot off the rains and snows better than one of a lower pitch. The wind will not so easily blow the dropping rain in between the slates, nor will it have so much power to strip them off. A high pitched roof will exert a smaller thrust on the walls, both because its strain is less horizontal, and because it will admit of lighter covering. But it is more expensive, because there is more of it. It requires a greater size of timbers to make it equally strong, and it exposes a greater surface to the wind.

6 Remarks on the changes in the pitch of roofs.

There have been great changes in the pitch of roofs: our forefathers made them very high, and we make them very low. It does not, however, appear, that this change has been altogether the effect of principle. In the simple unadorned habitations of private persons, every thing comes to be adjusted by an experience of inconveniences which have resulted from too low pitched roofs; and their pitch will always be nearly such as suits the climate and covering. Our architects, however, go to work on different principles. Their professed aim is to make a beautiful object. The sources of the pleasures arising from what we call *taste* are so various, so complicated, and even so whimsical, that it

is almost in vain to look for principle in the rules adopted by our professed architects. We cannot help thinking, that much of their practice results from a *pedantic* veneration for the beautiful productions of Grecian architecture. Such architects as have written on the principles of the art in respect of proportions, or what they call the ORDONNANCE, are very much puzzled to make a chain of reasoning; and the most that they have made of the Greek architecture is, that it exhibits a nice adjustment of strength and strain. But when we consider the extent of this adjustment, we find that it is wonderfully limited. The whole of it consists of a basement, a column, and an entablature; and the entablature, it is true, exhibits something of a connection with the framework and roof of a wooden building; and we believe that it really originated from this in the hands of the orientals, from whom the Greeks certainly borrowed their forms and their combinations. We could easily show in the ruins of Persepolis, and among the tombs in the mountains (which were long prior to the Greek architecture), the fluted column, the base, the Ionic and Corinthian capital, and the Doric arrangement of lintels, beams, and rafters, all derived from unquestionable principle. The only addition made by the Greeks was the pent roof; and the changes made by them in the subordinate forms of things are such as we should expect from their exquisite judgment of beauty.

7 Of the architecture.

But the whole of this is very limited; and the Greeks, after making the roof a chief feature of a house, went no farther, and contented themselves with giving it a slope suited to their climate. This we have followed, because in the milder parts of Europe we have no cogent reason for deviating from it; and if any architect should deviate greatly in a building where the outline is exhibited as beautiful, we should be disgusted; but the disgust, though felt by almost every spectator, has its origin in nothing but habit. In the professed architect or man of education, the disgust arises from pedantry: for there is not such a close connection between the form and uses of a roof as shall give precise determinations; and the mere form is a matter of indifference.

8 Difference between ancient Greeks and modern houses.

We should not therefore reprobate the high-pitched roofs of our ancestors, particularly on the continent. It is there where we see them in all the extremity of the fashion, and the taste is by no means exploded as it is with us. A baronial castle in Germany and France is seldom rebuilt in the pure Greek style, or even like the modern houses in Britain; the high-pitched roofs are retained. We should not call them Gothic, and ugly because Gothic, till we show their principle to be false or tasteless. Now we apprehend that it will be found quite the reverse; and that though we cannot bring ourselves to think them beautiful, we ought to think them so. The construction of the Greek architecture is a transference of the practices that are necessary in a wooden building to a building of stone. To this the Greeks have adhered, in spite of innumerable difficulties. Their marble quarries, however, put it in their power to retain the proportions which habit had rendered agreeable. But it is next to impossible to adhere to these proportions with freestone or brick, when the order is of magnificent dimensions. Sir Christopher Wren saw this; for his mechanical knowledge was equal to his taste. He composed the front of St Paul's church in London of two orders, and he coupled his columns; and still the lintels which form the architrave are of such length that they could carry no additional weight, and he was obliged to truss them behind. Had he made but one order, the architrave could not have carried its own weight. It is impossible to execute a Doric entablature of this size in brick. It is attempted in a very noble front, the Academy of Arts in St Petersburgh. But the architect was obliged to make the mutules and other projecting members of the corniche of granite, and many of them broke down by their own weight.

Here is surely an error in principle. Since stone is the chief material of our buildings, ought not the members of ornamented architecture to be refinements on the essential and unaffected parts of a simple stone-building. There is almost as much propriety in the architecture of India, where a dome is made in imitation of a lilly or other flower inverted, as in the Greek imitation of a wooden building. The principles of masonry, and not of carpentry, should be seen in our architecture, if we would have it according to the rules of just taste. Now we affirm that this is the characteristic feature of what is called the Gothic architecture. In this no dependence is had on the transverse strength of stone. No lintels are to be seen; no extravagant projections. Every stone is pressed to its neighbours, and none is exposed to a transverse strain. The Greeks were enabled to execute their colossal buildings only by using immense blocks of the hardest materials. The Norman mason could raise a building to the skies without using a stone which a labourer could not carry to the top on his back. Their architects studied the principles of equilibrium; and having attained a wonderful knowledge of it, they indulged themselves in exhibiting remarkable instances. We call this false taste, and say that the appearance of insecurity is the greatest fault. But this is owing to our habits: our thoughts may be said to run in a wooden train, and certain simple maxims of carpentry are familiar to our imagination; and in the careful adherence to these consists the beauty and symmetry of the Greek architecture. Had we been as much habituated to the equilibrium of pressure, this apparent insecurity would not have met our eye: we would have perceived the strength, and we should have relished the ingenuity.

9 And the effect of our using stone.

The Gothic architecture is perhaps intitled to the name of rational architecture, and its beauty is founded on the characteristic distinction of our species. It deserves cultivation: not the pitiful, servile, and unskilled copying of the monuments; this will produce incongruities and absurdities equal to any that have crept into the Greek architecture: but let us examine with attention the nice disposition of the groins and spaundrels; let us study the tracery and knots, not as ornaments, but as useful members; let us observe how they have made their walls like honey-combs, and admire their ingenuity as we pretend to admire the instinct infused by the great architect into the bee. All this cannot be understood without mechanical knowledge; a thing which few of our professional architects have any share of. Thus would architectonic taste be a mark of skill; and the person who presents the design of a building would know how to excite it, without committing it entirely to the mason and carpenter.

10 Rational nature of the Gothic architecture.

These observations are not a digression from our [illegible]

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ject. The ſame principles of mutual preſſure and equilibrium have a place in roofs and many wooden edifices; and if they had been as much ſtudied as the Normans and Saracens ſeem to have ſtudied ſuch of them as were applicable to their purpoſes, we might have produced wooden buildings as far ſuperior to what we are familiarly acquainted with, as the bold and wonderful churches ſtill remaining in Europe are ſuperior to the timid productions of our ſtone architecture. The ceintres uſed in building the bridge of Orleans and the corn-market of Paris, are late inſtances of what may be done in this way. The laſt mentioned is a dome of 200 feet diameter, built of fir planks; and there is not a piece of timber in it more than nine feet long, a foot broad, and three inches thick.

11 The Norman architects often roofed with ſtone.

The Norman architects frequently roofed with ſtone. Their wooden roofs were in general very ſimple, and their profeſſed aim was to diſpenſe with them altogether. Fond of their own ſcience, they copied nothing from a wooden building, and ran into a ſimilar fault with the ancient Greeks. The parts of their buildings which were neceſſarily of timber were made to imitate ſtone-buildings; and Gothic ornament conſiſts in cramming every thing full of arches and ſpaundrels. Nothing elſe is to be ſeen in their timber works, nay even in their ſculpture. Look at any of the maces or ſceptres ſtill to be found about the old cathedrals; they are ſilver ſteeples.

12 Effects of the rivalſhip between the maſons and carpenters of ancient times.

But there appears to have been a rivalſhip in old times between the maſons and the carpenters. Many of the baronial halls are of prodigious width, and are roofed with timber: and the carpenters appeared to have borrowed much knowledge from the maſons of thoſe times, and their wide roofs are frequently conſtructed with great ingenuity. Their aim, like the maſons, was to throw a roof over a very wide building without employing great logs of timber. We have ſeen roofs 60 feet wide, without having a piece of timber in it above 10 feet long and 4 inches ſquare. The Parliament Houſe and Tron-Church of Edinburgh, the great hall of Tarnaway caſtle near Elgin, are ſpecimens of thoſe roofs. They are very numerous on the continent. Indeed Britain retains few monuments of private magnificence. Ariſtocratic ſtate never was ſo great with us; and the rancour of our civil wars gave moſt of the performances of the carpenter to the flames. Weſtminſter-hall exhibits a ſpecimen of the falſe taſte of the Norman roofs. It contains the eſſential parts indeed, very properly diſpoſed; but they are hidden, or intentionally covered, with what is conceived to be ornamental; and this is an imitation of ſtone arches, crammed in between ſlender pillars which hang down from the principal frames, truſſes, or rafters. In a pure Norman roof, ſuch as Tarnaway hall, the eſſential parts are exhibited as things underſtood, and therefore reliſhed. They are refined and ornamented; and it is here that the inferior kind of taſte or the want of it may appear. And here we do not mean to defend all the whims of our anceſtors; but we aſſert that it is no more neceſſary to conſider the members of a roof as things to be concealed like a garret or privy, than the members of a ceiling, which form the moſt beautiful part of the Greek architecture. Should it be ſaid that a roof is only a thing to keep off the rain, it may be anſwered, that a ceiling is only to keep off the duſt, or the floor to be trodden underfoot, and that we ſhould have neither copartments in the one nor inlaid work or carpets on the other. The ſtructure of a roof may therefore be exhibited with propriety, and made an ornamental feature. This has been done even in Italy. The church of St Maria Maggiore in Rome and ſeveral others are ſpecimens: but it muſt be acknowledged, that the forms of the principal frames of theſe roofs, which reſemble thoſe of our modern buildings, are very unfit for agreeable ornament. As we have already obſerved, our imaginations have not been made ſufficiently familiar with the principles, and we are rather alarmed than pleaſed with the appearance of the immenſe logs of timber which form the couples of theſe roofs, and hang over our heads, with every appearance of weight and danger. It is quite otherwiſe with the ingenious roofs of the German and Norman architects. Slender timbers, interlaced with great ſymmetry, and thrown by neceſſity into figures which are naturally pretty, form altogether an object which no carpenter can view without pleaſure. And why ſhould the gentleman refuſe himſelf the ſame pleaſure of beholding ſcientific ingenuity?

13 Neceſſity of ſcience in terminating roofs;

The roof is in fact the part of the building which requires the greateſt degree of ſkill, and where ſcience will be of more ſervice than in any other part. The architect ſeldom knows much of the matter, and leaves the taſk to the carpenter. The carpenter conſiders the framing of a great roof as the touchſtone of his art; and nothing indeed tends ſo much to ſhew his judgment and his fertility of reſource.

It muſt therefore be very acceptable to the artiſt to have a clear view of the principles by which this difficult problem may be ſolved in the beſt manner, ſo that the roof may have all the ſtrength and ſecurity that can be wiſhed for, without an extravagant expence of timber and iron. We have ſaid that mechanical ſcience can give great aſſiſtance in this matter. We may add that the framing of carpentry, whether for roofs, floors, or any other purpoſe, affords one of the moſt elegant and moſt ſatisfactory applications which can be made of mechanical ſcience to the arts of common life. Unfortunately the practical artiſt is ſeldom poſſeſſed even of the ſmall portion of ſcience which would almoſt inſure his practice from all riſk of failure; and even our moſt experienced carpenters have ſeldom any more knowledge than what ariſes from their experience and natural ſagacity. The moſt approved author in our language is Price in his Britiſh Carpenter. Mathurin Jouſſe is in like manner the author moſt in repute in France; and the publications of both theſe authors are void of every appearance of principle. It is not uncommon to ſee the works of carpenters of the greateſt reputation tumble down, in conſequence of miſtakes from which the moſt elementary knowledge would have ſaved them.

14 And the little attention hitherto paid to it.

15 Purpoſe of this article.

We ſhall attempt, in this article, to give an account of the leading principles of this art in a manner ſo familiar and palpable, that any perſon who knows the common properties of the lever, and the compoſition of motion, ſhall ſo far underſtand them as to be able, on every occaſion, ſo to diſpoſe his materials, with reſpect to the ſtrains to which they are to be expoſed, that he ſhall always know the effective ſtrain on every piece, and ſhall,

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16 Principles which relate the strength of materials.

shall, in most cases, be able to make the disposition such as to derive the greatest possible advantage from the materials which he employs.

It is evident that the whole must depend on the principles which regulate the strength of the materials, relative to the manner in which this strength is exerted, and the manner in which the strain is laid on the piece of matter. With respect to the first, this is not the proper place for considering it, and we must refer the reader to the article *Strength of Materials in Mechanics*. We shall just borrow from that article two or three propositions suited to our purpose.

The force with which the materials of our edifices, roofs, floors, machines, and framings of every kind, resist being broken or crushed, or pulled asunder, is, immediately or ultimately, the cohesion of their particles. When a weight hangs by a rope, it tends either immediately to break all the fibres, overcoming the cohesion among the particles of each, or it tends to pull one parcel of them from among the rest, with which they are joined. This union of the fibres is brought about by some kind of gluten, or by twisting, which causes them to bind each other so hard that any one will break rather than come out, so much is it withheld by friction. The ultimate resistance is therefore the cohesion of the fibre; the force or strength of all fibrous materials, such as timber, is exerted in much the same manner. The fibres are either broken or pulled out from among the rest. Metals, stone, glass, and the like, resist being pulled asunder by the simple cohesion of their parts.

The force which is necessary for breaking a rope or wire is a proper measure of its strength. In like manner, the force necessary for tearing directly asunder any rod of wood or metal, breaking all its fibres, or tearing them from among each other, is a proper measure of the united strength of all these fibres. And it is the simplest strain to which they can be exposed, being just equal to the sum of the forces necessary for breaking or disengaging each fibre. And, if the body is not of a fibrous structure, which is the case with metals, stones, glass, and many other substances, this force is still equal to the simple sum of the cohesive forces of each particle which is separated by the fracture. Let us distinguish this mode of exertion of the cohesion of the body by the name of its Absolute Strength.

When solid bodies are, on the contrary, exposed to great compression, they can resist only to a certain degree. A piece of clay or lead will be squeezed out; a piece of freestone will be crushed to powder; a beam of wood will be crippled, swelling out in the middle, and its fibres lose their mutual cohesion, after which it is easily crushed by the load. A notion may be formed of the manner in which these strains are resisted by conceiving a cylindrical pipe filled with small shot, well shaken together, so that each spherical is lying in the closest manner possible, that is, in contact with six others in the same vertical plane (this being the position in which the shot will take the least room). Thus each touches the rest in six points: Now suppose them all united, in these six points only, by some cement. This assemblage will stick together and form a cylindrical pillar, which may be taken out of its mould. Suppose this pillar standing upright, and loaded above. The supports arising from the cement act obliquely, and the load tends either to force them asunder laterally, or to make them slide on each other: either of these things happening, the whole is crushed to pieces. The resistance of fibrous materials to such a strain is a little more intricate, but may be explained in a way very similar.

A piece of matter of any kind may also be destroyed by wrenching or twisting it. We can easily form a notion of its resistance to this kind of strain by considering what would happen to the cylinder of small shot if treated in this way.

And lastly, a beam, or a bar of metal, or a piece of stone or other matter, may be broken transversely. This will happen to a rafter or joist supported at the ends when overloaded, or to a beam having one end stuck fast in a wall and a load laid on its projecting part. This is the strain to which materials are most commonly exposed in roofs; and, unfortunately, it is the strain which they are the least able to bear; or rather it is the manner of application which causes an external force to excite the greatest possible immediate strain on the particles. It is against this that the carpenter must chiefly guard, avoiding it when in his power, and, in every case, diminishing it as much as possible. It is necessary to give the reader a clear notion of the great weakness of materials in relation to this transverse strain. But we shall do nothing more, referring him to the articles Strain, Stress, Strength.

17 Their weakness in relation to transverse strains.

Let ACBD (fig. 1.) represent the side of a beam projecting horizontally from a wall in which it is firmly fixed, and let it be loaded with a weight W appended to its extremity. This tends to break it; and the least reflection will convince any person that if the beam is equally strong throughout, it will break in the line CD, even with the surface of the wall. It will open at D, while C will serve as a sort of joint, round which it will turn. The cross section through the line CD is, for this reason, called the *section of fracture*, and the horizontal line, drawn through C on its under surface, is called the *axis of fracture*. The fracture is made by tearing asunder the fibres, such as DE or FG. Let us suppose a real joint at C, and that the beam is really sawed through along CD, and that in place of its natural fibres threads are substituted all over the section of fracture. The weight now tends to break these threads; and it is our business to find the force necessary for this purpose. Plate CCCCXL.

It is evident that DCA may be considered as a bended lever, of which C is the fulcrum. If f be the force which will just balance the cohesion of a thread when hung on it so that the smallest addition will break it, we may find the weight which will be sufficient for this purpose when hung on at A, by saying, AC : CD $= f : x$, and x will be the weight which will just break the thread, by hanging it by the point A. This gives us $x = f \times \frac{CD}{CA}$. If the weight be hung on at a, the force just sufficient for breaking the same thread will be $= f \frac{CD}{Ca}$. In like manner the force x, which must be hung on at A in order to break an equally strong or an equally

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equally resisting fibre at F, must be $=f\times\frac{CF}{CA}$. And so on of all the rest.

If we suppose all the fibres to exert equal resistances at the instant of fracture, we know, from the simplest elements of mechanics, that the resistance of all the particles in the line CD, each acting equally in its own place, is the same as if all the individual resistances were united in the middle point g. Now this total resistance is the resistance or strength f of each particle, multiplied by the number of particles. This number may be expressed by the line CD, because we have no reason to suppose that they are at unequal distances. Therefore, in comparing different sections together, the number of particles in each are as the sections themselves. Therefore DC may represent the number of particles in the line DC'. Let us call this line the depth of the beam, and express it by the symbol d. And since we are at present treating of roofs whose rafters and other parts are commonly of uniform breadth, let us call AH or BI the breadth of the beam, and express it by b, and let CA be called its length, l. We may now express the strength of the whole line CD by $f\times d$, and we may suppose it all concentrated in the middle point g. Its mechanical energy, therefore, by which it resists the energy of the weight w, applied at the distance l, is f. CD. Cg, while the momentum of w is w. CA. We must therefore have f. CD. C$g=w$. CA, or $fd.\frac{1}{2}d=w.\ l$, and $fd:w=l:\frac{1}{2}d$, or $fd:w=2l:d$. That is, twice the length of the beam is to its depth as the absolute strength of one of its vertical planes to its relative strength, or its power of resisting this transverse fracture.

It is evident, that what has been now demonstrated of the resistance exerted in the line CD, is equally true of every line parallel to CD in the thickness or breadth of the beam. The absolute strength of the whole section of fracture is properly represented by $f.\ d\ b$, and we still have $2l:d=fdb:w$; or twice the length of the beam is to its depth as the absolute strength to the relative strength. Suppose the beam 12 feet long and one foot deep; then whatever is its absolute strength, the 24th part of this will break it if hung at its extremity.

But even this is too favourable a statement; all the fibres are supposed to meet alike in the instant of fracture. But this is not true. At the instant that the fibre at D breaks, it is stretched to the utmost, and is exerting its whole force. But at this instant the fibre at g is not so much stretched, and it is not then exerting its utmost force. If we suppose the extension of the fibres to be as their distance from C, and the actual exertion of each to be as their extensions, it may easily be shown (see STRENGTH and STRAIN), that the whole resistance is the same as if the full force of all the fibres were united at a point r distant from C by one third of CD. In this case we must say, that the absolute strength is to the relative strength as three times the length to the depth; so that the beam is weaker than by the former statement in the proportion of two to three.

Even this is more strength than experiment justifies; and we can see an evident reason for it. When the beam is strained, not only are the upper fibres stretched, but the lower fibres are compressed. This is very distinctly seen, if we attempt to break a piece of cork cut into the shape of a beam: this being the case, C is not the centre of fracture. There is some point c which lies between the fibres which are stretched and those that are compressed. This fibre is neither stretched nor squeezed; and this point is the real centre of fracture: and the lever by which a fibre D resists, is not DC, but a shorter one Dc; and the energy of the whole resistances must be less than by the second statement. Till we know the proportion between the dilatability and compressibility of the parts, and the relation between the dilatations of the fibres and the resistances which they exert in this state of dilatation, we cannot positively say where the point c is situated, nor what is the sum of the actual resistances, or the point where their action may be supposed concentrated. The firmer woods, such as oak and chesnut, may be supposed to be but slightly compressible; we know that willow and other soft woods are very compressible. These last must therefore be weaker: for it is evident, that the fibres which are in a state of compression do not resist the fracture. It is well known, that a beam of willow may be cut through from C to g without weakening it in the least, if the cut be filled up by a wedge of hard wood stuck in.

We can only say, that very sound oak and red fir have the centre of effort so situated, that the absolute strength is to the relative strength in a proportion not less than that of three and a half times the length of the beam to its depth. A square inch of sound oak will carry about 8000 pounds. If this bar be firmly fixed in a wall, and project 12 inches, and be loaded at the extremity with 200 pounds, it will be broken. It will just bear 190, its relative strength being $\frac{1}{42}$ of its absolute strength; and this is the case only with the finest pieces, so placed that their annual plates or layers are in a vertical position. A larger log is not so strong transversely, because its plates lie in various directions round the heart.

18 Practical inference.

These observations are enough to give us a distinct notion of the vast diminution of the strength of timber when the strain is across it; and we see the justice of the maxim which we inculcated, that the carpenter, in framing roofs, should avoid as much as possible the exposing his timbers to transverse strains. But this cannot be avoided in all cases. Nay, the ultimate strain, arising from the very nature of a roof, is transverse. The rafters must carry their own weight, and this tends to break them across: an oak beam a foot deep will not carry its own weight if it project more than 60 feet. Besides this, the rafters must carry the lead, tyling, or slates. We must therefore consider this transverse strain a little more particularly, so as to know what strain will be laid on any part by an unavoidable load, laid on either at that part or at any other.

19 Effect when beams are supported at the ends and loaded in the middle, &c.

We have hitherto supposed, that the beam had one of its ends fixed in a wall, and that it was loaded at the other end. This is not an usual arrangement, and was taken merely as affording a simple application of the mechanical principles. It is much more usual to have the beam supported at the ends, and loaded in the middle. Let the beam FEGH (fig. 2.) rest on the props E and G, and be loaded at its middle point C with a weight W. It is required to determine the strain at the section CD? It is plain that the beam will

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receive the same support, and suffer the same strain, if, instead of the blocks E and G, we substitute the ropes E $f e$, G $h g$, going over the pulleys f and g, and loaded with proper weights e and g. The weight e is equal to the support given by the block E; and g is equal to the support given by G. The sum of e and g is equal to W; and, on whatever point W is hung, the weights e and g are to W in the proportion of DG and DE to GE. Now, in this state of things, it appears that the strain on the section CD arises immediately from the upward action of the ropes F f and H h, or the upward pressions of the blocks E and G; and that the office of the weight W is to oblige the beam to oppose this strain. Things are in the same state in respect of strain as if a block were substituted at D for the weight W, and the weights e and g were hung on at E and G; only the directions will be opposite. The beam tends to break in the section CD, because the ropes pull it upwards at E and G, while a weight W holds it down at C. It tends to open at D, and C becomes the centre of fracture. The strain therefore is the same as if the half ED were fixed in the wall, and a weight equal to g, that is, to the half of W, were hung on at G.

Hence we conclude, that a beam supported at both ends, but not fixed there, and loaded in the middle, will carry twice as much weight as it can carry at its extremity, when the other extremity is fast in a wall.

The strain occasioned at any point L by a weight W, hung on at any other point D, is $= W \times \frac{DE}{EG} \times LG$. For EG is to ED as W to the pressure occasioned at G. This would be balanced by some weight g acting over the pulley h; and this tends to break the beam at L, by acting on the lever GL. The pressure at G is $W.\frac{DE}{EG}$, and therefore the strain at L is $W.\frac{DE}{EG}.LG$.

In like manner, the strain occasioned at the point D by the weight W hung on there, is $W\frac{DE}{EG} \times DG$; which is therefore equal to $\frac{1}{2}$ W, when D is the middle point.

Hence we see, that the general strain on the beam arising from one weight, is proportionable to the rectangle of the parts of the beam, (for $\frac{W.DE.DG}{EG}$ is as DE.DG), and is greatest when the load is laid on the middle of the beam.

We also see, that the strain at L, by a load at D, is equal to the strain at D by the same load at L. And the strain at L, from a load at D, is to the strain by the same load at L as DE to LE. These are all very obvious corollaries; and they sufficiently inform us concerning the strains which are produced on any part of the timber by a load laid on any other part.

If we now suppose the beam to be fixed at the two ends, that is, firmly framed, or held down by blocks at I and K, placed beyond E and G, or framed into posts, it will carry twice as much as when its ends were free. For suppose it sawn through at CD; the weight W hung on there will be just sufficient to break it at E and G. Now restore the connection of the section CD, it will require another weight W to break it there at the same time.

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Therefore, when a rafter, or any piece of timber, is firmly connected with three fixed points G, E, I, it will bear a greater load between any two of them than if its connection with the remote point were removed; and if it be fastened in four points, G, E, I, K, it will be twice as strong in the middle part as without the two remote connections.

One is apt to expect from this that the joist of a floor will be much strengthened by being firmly built in the wall. It is a little strengthened; but the hold which can thus be given it is much too short to be of any sensible service; and it tends greatly to shatter the wall, because, when it is bent down by a load, it forces up the wall with the momentum of a long lever. Judicious builders therefore take care not to bind the joists tight in the wall. But when the joists of adjoining rooms lie in the same direction, it is a great advantage to make them of one piece. They are then twice as strong as when made in two lengths.

Inferences.

It is easy to deduce from these premisses the strain on any point which arises from the weight of the beam itself, or from any load which is uniformly diffused over the whole or any part. We may always consider the whole of the weight which is thus uniformly diffused over any part as united in the middle point of that part; and if the load is not uniformly diffused, we may still suppose it united at its centre of gravity. Thus, to know the strain at L arising from the weight of the whole beam, we may suppose the whole weight accumulated in its middle point D. Also the strain at L, arising from the weight of the part ED, is the same as if this weight were accumulated in the middle point d of ED; and it is the same as if half the weight of ED were hung on at D. For the real strain at L is the upward pressure at G, acting by the lever GL. Now call the weight of the part DE e; this upward pressure will be $\frac{e \times dE}{EG}$, or $\frac{\frac{1}{2}e \times DE}{EG}$.

Therefore the strain on the middle of a beam, arising from its own weight, or from any uniform load, is the weight of the beam or its load $\times \frac{ED}{EG} \times DG$; that is, half the weight of the beam or load multiplied or acting by the lever DG; for $\frac{ED}{EG}$ is $\frac{1}{2}$.

Also the strain at L, arising from the weight of the beam, or the uniform load, is $\frac{1}{4}$ the weight of the beam or load acting by the lever LG. It is therefore proportional to LG, and is greatest of all at D. Therefore a beam of uniform strength throughout, uniformly loaded, will break in the middle.

Relation between the weights or strains and the relative strength.

It is of importance to know the relation between the strains arising from the weights of the beams, or from any uniformly diffused load, and the relative strength. We have already seen, that the relative strength is $f\frac{d^2 b.l}{m\,l}$, where m is a number to be discovered by experiment for every different species of materials. Leaving out every circumstance but what depends on the dimensions of the beam, viz. d, b, and l, we see that the relative strength is in the proportion of $\frac{d^2 b}{l}$,

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that is, as the breadth and the ſquare of the depth directly and the length inverſely.

Now, to conſider firſt the ſtrain ariſing from the weight of the beam itſelf, it is evident that this weight increaſes in the ſame proportion with the depth, the breadth, and the length of the beam. Therefore its power of reſiſting this ſtrain muſt be as its depth directly, and the ſquare of its length inverſely. To conſider this in a more popular manner, it is plain that the increaſe of breadth makes no change in the power of reſiſting the actual ſtrain, becauſe the load and the abſolute ſtrength increaſe in the ſame proportion with the breadth. But by increaſing the depth, we increaſe the reſiſting ſection in the ſame proportion, and therefore the number of reſiſting fibres and the abſolute ſtrength: but we alſo increaſe the weight in the ſame proportion. This makes a compenſation, and the relative ſtrength is yet the ſame. But by increaſing the depth, we have not only increaſed the abſolute ſtrength, but alſo its mechanical energy: For the reſiſtance to fracture is the ſame as if the full ſtrength of each fibre was exerted at the point which we called the centre of effort; and we ſhowed, that the diſtance of this from the underſide of the beam was a certain portion (a half, a third, a fourth, &c.) of the whole depth of the beam. This diſtance is the arm of the lever by which the coheſion of the wood may be ſuppoſed to act. Therefore this arm of the lever, and conſequently the energy of the reſiſtance, increaſes in the proportion of the depth of the beam, and this remains uncompenſated by any increaſe of the ſtrain. On the whole, therefore, the power of the beam to ſuſtain its own weight increaſes in the proportion of its depth. But, on the other hand, the power of withſtanding a given ſtrain applied at its extremity, or to any aliquot part of its length, is diminiſhed as the length increaſes, or is inverſely as the length; and the ſtrain ariſing from the weight of the beam alſo increaſes as the length. Therefore the power of reſiſting the ſtrain actually exerted on it by the weight of the beam is inverſely as the ſquare of the length. On the whole, therefore, the power of a beam to carry its own weight, varies in the proportion of its depth directly and the ſquare of its length inverſely.

As this ſtrain is frequently a conſiderable part of the whole, it is proper to conſider it apart, and then to reckon only on what remains for the ſupport of any extraneous load.

22 Power of a beam to carry a load uniformly diffuſed over its length.

In the next place, the power of a beam to carry any load which is uniformly diffuſed over its length, muſt be inverſely as the ſquare of the length: for the power of withſtanding *any* ſtrain applied to an aliquot part of the length (which is the caſe here, becauſe the load may be conceived as accumulated at its centre of gravity, the middle point of the beam) is inverſely as the length; and the *actual* ſtrain is as the length, and therefore its momentum is as the ſquare of the length. Therefore the power of a beam to carry a weight uniformly diffuſed over it, is inverſely as the ſquare of the length. *N. B.* It is here underſtood, that the uniform load is of ſome determined quantity for every foot of the length, ſo that a beam of double length carries a double load.

23 Effect when the action of the load oblique.

We have hitherto ſuppoſed that the forces which tend to break a beam tranſverſely, are acting in a direction perpendicular to the beam. This is always the caſe in level floors loaded in any manner; but in roofs, the action of the load tending to break the rafters is oblique, becauſe gravity always acts in vertical lines. It may alſo frequently happen, that a beam is ſtrained by a force acting obliquely. This modification of the ſtrain is eaſily diſcuſſed. Suppoſe that the external force, which is meaſured by the weight W in fig. 1. acts in the direction A *w* inſtead of AW. Draw C *á* perpendicular to A *w*. Then the momentum of this external force is not to be meaſured by W × AC, but by W × *á* C. The ſtrain therefore by which the fibres in the ſection of fracture DC are torn aſunder, is diminiſhed in the proportion of CA to C *á*, that is, in the proportion of radius to the ſine of the angle CA *á*, which the beam makes with the direction of the external force.

To apply this to our purpoſe in the moſt familiar manner, let AB (fig. 3.) be an oblique rafter of a building, loaded with a weight W ſuſpended to any point C, and thereby occaſioning a ſtrain in ſome part D. We have already ſeen, that the immediate cauſe of the ſtrain on D is the reaction of the ſupport which is given to the point B. The rafter may at preſent be conſidered as a lever, ſupported at A, and pulled down by the line CW. This occaſions a preſſure on B, and the ſupport acts in the oppoſite direction to the action of the lever; that is, in the direction B *b*, perpendicular to BA. This tends to break the beam in every part. The preſſure exerted at B is $\frac{W \times AE}{AB}$, AE being a horizontal line. Therefore the ſtrain at D will be $\frac{W \times AE}{AB} \times BD$. Had the beam been lying horizontally, the ſtrain at D, from the weight W ſuſpended at C, would have been $\frac{W.AC}{AB} \times BD$. It is therefore diminiſhed in the proportion of AC to AE, that is, in the proportion of radius to the coſine of the elevation, or in the proportion of the ſecant of elevation to the radius.

It is evident, that this law of diminution of the ſtrain is the ſame whether the ſtrain ariſes from a load on any part of the rafter, or from the weight of the rafter itſelf, or from any load uniformly diffuſed over its length, provided only that theſe loads act in vertical lines.

24 Strength of roofs having different elevations compared.

We can now compare the ſtrength of roofs which have different elevations. Suppoſing the width of the building to be given, and that the weight of a ſquare yard of covering is alſo given. Then, becauſe the load on the rafter will increaſe in the ſame proportion with its length, the load on the ſlant-ſide BA of the roof will be to the load of a ſimilar covering on the half AF of the flat roof, of the ſame width, as AB to AF. But the tranſverſe action of any load on AB, by which it tends to break it, is to that of the ſame load on AF as AF to AB. The tranſverſe ſtrain therefore is the ſame on both, the increaſe of real load on AB being compenſated by the obliquity of its action. But the ſtrengths of beams to reſiſt equal ſtrains, applied to ſimilar points, or uniformly diffuſed over them, are inverſely as their lengths, becauſe the momentum or energy of the ſtrain is proportional to the length. Therefore

fore the power of AB to withstand the strain to which it is really exposed, is to the power of AF to resist its strain as AF to AB. If, therefore, a rafter AG of a certain scantling is just able to carry the roofing laid on it, a rafter AB of the same scantling, but more elevated, will be too weak in the proportion of AG to AB. Therefore steeper roofs require stouter rafters, in order that they may be equally able to carry a roofing of equal weight per square yard. To be equally strong, they must be made broader, or placed nearer to each other, in the proportion of their greater length, or they must be made deeper in the subduplicate proportion of their length. The following easy construction will enable the artist not familiar with computation to proportion the depth of the rafter to the slope of the roof.

Let the horizontal line *af* (fig. 4.) be the proper depth of a beam whose length is half the width of the building; that is, such as would make it fit for carrying the intended tiling laid on a flat roof. Draw the vertical line *fb*, and the line *ab* having the elevation of the rafter; make *ag* equal to *af*, and describe the semicircle *bdg*; draw *ad* perpendicular to *ab*, *ad* is the required depth. The demonstration is evident.

We have now treated in sufficient detail what relates to the chief strain on the component parts of a roof, namely, what tends to break them transversely; and we have enlarged more on the subject than what the present occasion indispensably required, because the propositions which we have demonstrated are equally applicable to all framings of carpentry, and are even of greater moment in many cases, particularly in the construction of machines. These consist of levers in various forms, which are strained transversely; and similar strains frequently occur in many of the supporting and connecting parts. We shall give in the article TIMBER an account of the experiments which have been made by different naturalists, in order to ascertain the absolute strength of some of the materials which are most generally framed together in buildings and engines. The house-carpenter will draw from them absolute numbers, which he can apply to his particular purposes by means of the propositions which we have now established.

25 Effect of other strains, pressures, or thrusts.

We proceed, in the next place, to consider the other strains to which the parts of roofs are exposed, in consequence of the support which they mutually give each other, and the pressures (or *thrusts* as they are called in the language of the house-carpenter) which they exert on each other, and on the walls or piers of the building.

Let a beam or piece of timber AB (fig. 5.) be suspended by two lines AC, BD; or let it be supported by two props AE, BF, which are perfectly moveable round their remote extremities E,F, or let it rest on the two polished plains KAH, LBM. Moreover, let G be the centre of gravity of the beam, and let GN be a line through the centre of gravity perpendicular to the horizon. The beam will not be in equilibrio unless the vertical line GN either passes through P, the point in which the directions of the two lines AC, BD, or the directions of the two props EA, FD, or the perpendiculars to the two planes KAH, LBM intersect each other, or is parallel to these directions. For the supports given by the lines or props are unquestionably exerted in the direction of their lengths; and it is as well known in mechanics that the supports given by planes are exerted in a direction perpendicular to those planes in the points of contact; and we know that the weight of the beam acts in the same manner as if it were all accumulated in its centre of gravity G, and that it acts in the direction GN perpendicular to the horizon. Moreover, when a body is in equilibrio between three forces, they are acting in one plane, and their directions are either parallel or they pass through one point.

The support given to the beam is therefore the same as if it were suspended by two lines which are attached to the single point P. We may also infer, that the points of suspension C, D, the points of support E, F, the points of contact A, B, and the centre of gravity G, are all in one vertical plane.

When this position of the beam is disturbed by any external force, there must either be a motion of the points A and B round the centres of suspension C and D, or of the props round these points of support E and F, or a sliding of the ends of the beam along the polished planes GH and IK; and in consequence of these motions the centre of gravity G will go out of its place, and the vertical line GN will no longer pass through the point where the directions of the supports intersect each other. If the centre of gravity rises by this motion, the body will have a tendency to recover its former position, and it will require force to keep it away from it. In this case the equilibrium may be said to be *stable*, or the body to have *stability*. But if the centre of gravity descends when the body is moved from the position of equilibrium, it will tend to move still farther; and so far will it be from recovering its former position, that it will now fall. This equilibrium may be called a *tottering equilibrium*. These accidents depend on the situations of the points A, B, C, D, E, F; and they may be determined by considering the subject geometrically. It does not much interest us at present; it is rarely that the equilibrium of suspension is tottering, or that of props is stable. It is evident, that if the beam were suspended by lines from the point P, it would have stability, for it would swing like a pendulum round P, and therefore would always tend towards the position of equilibrium. The intersection of the lines of support would still be at P, and the vertical line drawn through the centre of gravity, when in any other situation, would be on that side of P towards which this centre has been moved. Therefore, by the rules of pendulous bodies, it tends to come back. This would be more remarkably the case if the points of suspension C and D be on the same side of the point P with the points of attachment A and B; for in this case the new point of intersection of the lines of support would shift to the opposite side, and be still farther from the vertical line through the new position of the centre of gravity. But if the points of suspension and of attachment are on opposite sides of P, the new point of intersection may shift to the same side with the centre of gravity, and lie beyond the vertical line; in this case the equilibrium is tottering. It is easy to perceive, too, that if the equilibrium of suspension from the points C and D be stable, the equilibrium on the props AE and BF must be tottering. It is not necessary for our present purpose to engage more particularly in this discussion.

It is plain that, with respect to the mere momentary equilibrium, there is no difference in the support by threads,

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threads, or props, or planes, and we may substitute the one for the other. We shall find this substitution extremely useful, because we easily conceive distinct notions of the support of a body by strings.

Observe farther, that if the whole figure be inverted, and strings be substituted for props, and props for strings, the equilibrium will still obtain: for by comparing fig. 5. with fig. 6. we see that the vertical line through the centre of gravity will pass through the intersection of the two strings or props; and this is all that is necessary for the equilibrium: only it must be observed in the substitution of props for threads, and of threads for props, that if it be done without inverting the whole figure, a stable equilibrium becomes a tottering one, and *vice versa*.

25 Examples.

This is a most useful proposition, especially to the unlettered artisan, and enables him to make a practical use of problems which the greatest mechanical geniuses have found no easy task to solve. An instance will show the extent and utility of it. Suppose it were required to make a mansard or kirb roof whose width is AB (fig. 7.), and consisting of the four equal rafters AC, CD, DE, EB. There can be no doubt but that its best form is that which will put all the parts in equilibrio, so that no ties or stays may be necessary for opposing the unbalanced thrust of any part of it. Make a chain *a c d e b* (fig. 8.) of four equal pieces, loosely connected by pin-joints, round which the parts are perfectly moveable. Suspend this from two pins *a*, *b*, fixed in a horizontal line. This chain or festoon will arrange itself in such a form that its parts are in equilibrio. Then we know that if the figure be inverted, it will compose the frame or truss of a kirb-roof *a γ δ ε b*, which is also in equilibrio, the thrusts of the pieces balancing each other in the same manner that the mutual pulls of the hanging festoon *a c d e b* did. If the proportion of the height *d f* to the width *a b* is not such as pleases, let the pins *a*, *b* be placed nearer or more distant, till a proportion between the width and height is obtained which pleases, and then make the figure ACDEB fig. 7. similar to it. It is evident that this proposition will apply in the same manner to the determination of the form of an arch of a bridge; but this is not a proper place for a farther discussion.

We are now able to compute all the thrusts and other pressures which are exerted by the parts of a roof on each other and on the walls. Let AB (fig. 9.) be a beam standing anyhow obliquely, and G its centre of gravity. Let us suppose that the ends of it are supported in any directions AC, BD, by strings, props, or planes. Let these directions meet in the point P of the vertical line PG passing through its centre of gravity. Through G draw lines G*a*, G*b* parallel to PB, PA. Then

$$\left.\begin{array}{l}\text{The weight of the beam}\\ \text{The pressure or thrust at A}\\ \text{The pressure at B}\end{array}\right\}\text{are proportional to}\left\{\begin{array}{l}PG\\ P\,a\\ P\,b.\end{array}\right.$$

For when a body is in equilibrio between three forces, these forces are proportional to the sides of a triangle which have their directions.

In like manner, if A*g* be drawn parallel to P*b*, we shall have

$$\left.\begin{array}{l}\text{Weight of the beam}\\ \text{Thrust on A}\\ \text{Thrust on B}\end{array}\right\}\text{proportional to}\left\{\begin{array}{l}P\,g\\ PA\\ B\,g\end{array}\right.$$

Or, drawing B*γ* parallel to P*a*

$$\left.\begin{array}{l}\text{Weight of beam}\\ \text{Thrust at A}\\ \text{Thrust at B}\end{array}\right\}\text{are proportional to}\left\{\begin{array}{l}P\,\gamma\\ B\,\gamma\\ PB\end{array}\right.$$

27 The form of a roof is that which puts the whole in equilibrio.

It cannot be disputed that, if strength alone be considered, the proper form of a roof is that which puts the whole in equilibrio, so that it would remain in that shape although all the joints were perfectly loose or flexible. If it has any other shape, additional ties or braces are necessary for preserving it, and the parts are unnecessarily strained. When this equilibrium is obtained, the rafters which compose the roof are all acting on each other in the direction of their lengths; and by this action, combined with their weights, they sustain no strain but that of compression, the strain of all others that they are the most able to resist. We may consider them as so many inflexible lines having their weights accumulated in their centres of gravity. But it will allow an easier investigation of the subject, if we suppose the weights to be at the joints, equal to the real vertical pressures which are exerted on these points. These are very easily computed: for it is plain, that the weight of the beam AB (fig. 9.) is to the part of this weight that is supported at B as AB to AG. Therefore, if W represent the weight of the beam, the vertical pressure at B will be $W \times \frac{AG}{AB}$, and the vertical pressure at A will be $W \times \frac{BG}{AB}$. In like manner, the prop BF being considered as another beam, and *f* as its centre of gravity, and *w* as its weight, a part of this weight, equal to $w \times \frac{fF}{BF}$, is supported at B, and the whole vertical pressure at B is $W \times \frac{AG}{AB} + w \times \frac{fF}{BF}$. And thus we greatly simplify the construction of the mutual thrusts of roof frames. We need hardly observe, that although these pressures by which the parts of a frame support each other in opposition to the vertical action of gravity, are always exerted in the direction of the pieces, they may be resolved into pressures acting in any other direction which may engage our attention.

All that we propose to deliver on this subject at present may be included in the following proposition.

Let ABCDE (fig. 10.) be an assemblage of rafters in a vertical plane, resting on two fixed points A and E in a horizontal line, and perfectly moveable round all the joints A, B, C, D, E; and let it be supposed to be in equilibrio, and let us investigate what adjustment of the different circumstances of weight and inclination of its different parts is necessary for producing this equilibrium.

Let F, G, H, I, be the centres of gravity of the different rafters, and let these letters express the weights of each. Then (by what has been said above) the weight which presses B directly downwards is $F \times \frac{AF}{AB} + G \times \frac{CG}{BC}$. The weight on C is in like manner $G \times \frac{BG}{BC} + H \times \frac{DH}{CD}$, and that on D is $H \times \frac{CH}{CD} + I \times \frac{EI}{DE}$.

Let A*b c d* E be the figure ABCDE inverted, in the manner already described. It may be conceived as a thread fastened at A and E, and loaded at *b*, *c*, and

d with the weights which are really preſſing on B, C, and D. It will arrange itſelf into ſuch a form that all will be in equilibrio. We may diſcover this form by means of this ſingle conſideration, that any part bc of the thread is equally ſtretched throughout in the direction of its length. Let us therefore inveſtigate the proportion between the weight b, which we ſuppoſe to be pulling the point b in the vertical direction bb to the weight d, which is pulling down the point d in a ſimilar manner. It is evident, that ſince AE is a horizontal line, and the figures A bcd E and ABCDE equal and ſimilar, the lines B b, C c, D d, are vertical. Take bf to repreſent the weight hanging at b. By ſtretching the threads b A and bc, it is ſet in oppoſition to the contractile powers of the threads, acting in the directions b A and bc, and it is in immediate equilibrio with the equivalent of theſe two contractile forces. Therefore make bg equal to bf, and make it the diagonal of a parallelogram $hbig$. It is evident that bh, bi, are the forces exerted by the threads b A, bc. Then, ſeeing that the thread bc is equally ſtretched in both directions, make ck equal to bi; ck is the contractile force which is excited at by the weight which is hanging there. Draw kl parallel to cd, and lm parallel to bc. The force lc is the equivalent of the contractile forces ck, cm and is therefore equal and oppoſite to the force of gravity acting at C. In like manner, make $dn = cm$, and complete the parallelogram $ndpo$, having the vertical line od for its diagonal. Then dn and dp are the contractile forces excited at d, and the weight hanging there muſt be equal to od.

Therefore, the load at b is to the load at d as bg to do. But we have ſeen that the compreſſing forces at B, C, D may be ſubſtituted for the extending forces at b, c, d. Therefore the weights at B, C, D which produce the compreſſions, are equal to the weights at b, c, d, which produce the extenſions. Therefore $bg : do =$

$$E \times \frac{AF}{AB} + G \times \frac{CG}{BC} : H \times \frac{CH}{CD} + I \times \frac{EI}{DE}.$$

Let us enquire what relation there is between this proportion of the loads upon the joints at B and D, and the angles which the rafters make at theſe joints with each other, and with the horizon or the plumb lines. Produce AB till it cut the vertical Cc in Q; draw BR parallel to CD, and BS parallel to DE. The ſimilarity of the figures ABCDE and A bcd E, and the ſimilarity of their poſition with reſpect to the horizontal and plumb lines, ſhow, without any further demonſtration, that the triangles QCB and gbi are ſimilar, and that QB : BC $= gi : ib = hb : ib$. Therefore QB is to BC as the contractile force exerted by the thread A b to that exerted by bc; and therefore QB is to BC as the compreſſion of B A to the compreſſion on BC (A). Then, becauſe bi is equal to ck, and the triangles CBR and ckl are ſimilar, CB : BR $= ck : kl$, $= ck : cm$, and CB is to BR as the compreſſion on CB to the compreſſion on CD. And, in like manner, becauſe $cm = dn$, we have BR to BS as the compreſſion on DC to the compreſſion on DE. Also BR : RS $= nd : do$, that is, as the compreſſion on DC to the load on D. Finally, combining all theſe ratios

QC : CB $= gb : bi$, $= gb : kc$
CB : BR $= kc : kl$, $= kc : dn$
BR : BS $= nd : no = dn : no$
BS : RS $= no : do = no : dc$, we have finally
QC : RS $= gb : od$ = Load at B : Load at D.

Now

QC : BC $= f$, QBC : f, BQC, $= f$, ABC : f, AB b
BC : BR $= f$, BRC : f, BCR, $= f$ CD d : f, b BC
BR : RS $= f$, BSR : f, RBS $= f$, d DE : f, CDE

Therefore

QC : RS $= f$, ABC. f, CD d. f, d DE : f, CDE. f, AB b, f, b BC.

Or

$$QC : RS = \frac{f, ABC}{f, AB\,b . f\,CB\,b} : \frac{f, CDE}{f, d\,DC . f, d\,DE}.$$

That is, the loads on the different joints are as the ſines of the angles at theſe joints directly, and as the products of the ſines of the angles which the rafters make with the plumb-lines inverſely.

Or, the loads are as the ſines of the angles of the joints directly, and as the products of the coſines of the elevations of the rafters jointly.

Or, the loads at the joints are as the ſines of the angles at the joints, and as the products of the ſecants of elevation of the rafters jointly: for the ſecants of angles are inverſely as the coſines.

Draw the horizontal line BT. It is evident, that if this be conſidered as the radius of a circle, the lines BQ, BC, BR, B S are the ſecants of the angles which theſe lines make with the horizon. And they are alſo as the thruſts of thoſe rafters to which they are parallel. Therefore, the thruſt which any rafter makes in its own direction is as the ſecant of its elevation.

The horizontal thruſt is the ſame at all the angles. For $ik = kx$, $= mx$, $= nx$, $= px$. Therefore both walls are equally preſſed out by the weight of the roof. We can find its quantity by comparing it with the load on one of the joints:

Thus, QC : CB $= f$, ABC : f, AB b
BC : BT = Rad. : f, BCT, = Rad. : f, CB b
Therefore, QC : BT = Rad. $\times f$, ABC : f, b BA $\times f$, b BC

28 The length of the beams depends on the weight at the angle.

It deſerves remark, that the lengths of the beams do not affect either the proportion of the load at the different joints, nor the poſition of the rafters. This depends merely on the weights at the angles. If a change of length affects the weight, this indeed affects the form alſo; and this is generally the caſe. For it ſeldom happens, indeed it never ſhould happen, that the weight on rafters of longer bearing are not greater. The covering alone increaſes nearly in the proportion of the length of the rafter.

If the proportion of the weights at B, C, and D are

(A) This proportion might have been ſhown directly without any uſe of the inverted figure or conſideration of contractile forces; but this ſubſtitution gives diſtinct notions of the mode of acting even to perſons not much conversant in ſuch diſquiſitions; and we wiſh to make it familiar to the mind, becauſe it gives an eaſy ſolution of the moſt complicated problems, and furniſhes the practical carpenter, who has little ſcience, with ſolutions of the moſt difficult caſes by experiment. A feſtoon, as we called it, may eaſily be made; and we are certain, that the forms into which it will arrange itſelf are models of perfect frames.

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are given, as also the position of any two of the lines, the position of all the rest is determined.

If the horizontal distances between the angles are all equal, the forces on the different angles are proportional to the verticals drawn on the lines through these angles from the adjoining angle, and the thrusts from the adjoining angles are as the lines which connect them.

If the rafters themselves are of equal lengths, the weights at the different angles are as these verticals and as the secants of the elevation of the rafters jointly.

29 Practical inferences.

This proposition is very fruitful in its practical consequences. It is easy to perceive that it contains the whole theory of the construction of arches; for each stone of an arch may be considered as one of the rafters of this piece of carpentry, since all is kept up by its mere equilibrium. We may have an opportunity in some future article of exhibiting some very elegant and simple solutions of the most difficult cases of this important problem; and we now proceed to make use of the knowledge we have acquired for the construction of roofs.

30 To determine the best form of a kirb-roof.

We mentioned by the bye a problem which is not unfrequent in practice, to determine the best form of a kirb-roof. Mr Couplet of the Royal Academy of Paris has given a solution of it in an elaborate memoir in 1726, occupying several lemmas and theorems.

Let AE (fig. 11.) be the width, and CF the height; it is required to construct a roof ABCDE whose rafters AB, BC, CD, DE, are all equal, and which shall be in equilibrio.

Draw CE, and bisect it perpendicularly in H by the line DHG, cutting the horizontal line AE in G. About the centre G, with the distance GE, describe the circle EDC. It must pass through C, because CH is equal to HE and the angles at H are equal. Draw HK parallel to FE, cutting the circumference in K. Draw CK, cutting GH in D. Join CD, ED; these lines are the rafters of half of the roof required.

We prove this by showing, that the loads in the angles C and D are equal. For this is the proportion which results from the equality of the rafters, and the extent of surface of the uniform roofing which they are supposed to support. Therefore produce ED till it meet the vertical FC in N; and having made the side CBA similar to CDE, complete the parallelogram BCDP, and draw DB, which will bisect CP in R, as the horizontal line KH, bisects CF in Q. Draw KF, which is evidently parallel to DP. Make CS perpendicular to CF, and equal to FG; and about S, with the radius SF, describe the circle FKW. It must pass through K, because SF is equal to CG, and CQ = QF. Draw WK, WS, and produce BC, cutting ND in O.

The angle WKF at the circumference is one-half of the angle WSF at the centre, and is therefore equal to WSC, or CGF. It is therefore double of the angle CEF or ECS. But ECS is equal to ECD and DCS, and ECD is one-half of NDC, and DCS is one-half of DCO, or CDP. Therefore the angle WKF is equal to NDP, and WK is parallel to ND, and CF is to CW as CP to CN; and CN is equal to CP. But it has been shown above, that CN and CP are as the loads upon D and C. These are therefore equal, and the frame ABCDE is in equilibrio.

A comparison of this solution with that of Mr Couplet will show its great advantage in respect of simplicity and perspicuity. And the intelligent reader can easily adapt the construction to any proportion between the rafters AB and BC, which other circumstances, such as garret-room, &c. may render convenient. The construction must be such that NC may be to CP as CD to $\frac{CD + DE}{2}$. Whatever proportion of AB to BC is assumed, the point D′ will be found in the circumference of a semicircle H′ D′ h′, whose centre is in the line CE, and having AB : BC = CH′ : HE, = $ch : h'E$. — The rest of the construction is simple.

In buildings which are roofed with slate, tyle, or shingles, the circumstance which is most likely to limit the construction is the slope of the upper rafters CB, CD. This must be sufficient to prevent the penetration of rain, and the stripping by the winds. The only circumstance left in our choice in this case is the proportion of the rafters AB and BC. Nothing is easier than making NC to CP in any desired proportion when the angle BCD is given.

31 The truss for a roof should always be in equilibrio.

We need not repeat that it is always a desirable thing to form a truss for a roof in such a manner that it shall be in equilibrio. When this is done, the whole force of the struts and braces which are added to it is employed in preserving this form, and no part is expended in unnecessary strains. For we must now observe, that the equilibrium of which we have been treating is always of that kind which we called the tottering, and the roof requires stays, braces, or hanging timbers, to give it stiffness, or keep it in shape. We have also said enough to enable any reader, acquainted with the most elementary geometry and mechanics, to compute the transverse strains and the thrusts to which the component parts of all roofs are exposed.

32 General maxims which all roofs must be constructed.

It only remains now to show the general maxims by which all roofs must be constructed, and the circumstances which determine their excellence. In doing this we shall be exceedingly brief, and almost content ourselves with exhibiting the principal forms, of which the endless variety of roofs are only slight modifications.— We shall not trouble the reader with any account of such roofs as receive part of their support from the interior walls, but confine ourselves to the more difficult problem of throwing a roof over a wide building, without any intermediate support; because when such roofs are constructed in the best manner, that is, deriving the greatest possible strength from the materials employed, the best construction of the others is necessarily included. For all such roofs as rest on the middle walls are roofs of smaller bearing. The only exception deserving notice is the roofs of churches, which have aisles separated from the nave by columns. The roof must rise on these. But if it is of an arched form internally, the horizontal thrusts must be nicely balanced, that they may not push the columns aside.

33 Simplest notion of a roof.

The simplest notion of a roof-frame is, that it consists of two rafters AB and BC (fig. 12.), meeting in the ridge B.

Even this simple form is susceptible of better and worse

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worse. We have already seen, that when the weight of a square yard of covering is given, a steeper roof requires stronger rafters, and that when the scantling of the timbers is also given, the relative strength of a rafter is inversely as its length. But there is now another circumstance to be taken into the account, viz. the support which one rafter leg gives to the other. The best form of a rafter will therefore be that in which the relative strength of the legs, and their mutual support, give the greatest product. Mr Muller, in his *Military Engineer*, gives a determination of the best pitch of a roof, which has considerable ingenuity, and has been copied into many books of military education both in this island and on the continent. Describe on the width A C, fig. 13. the semicircle AFC, and bisect it by the radius F D. Produce the rafter A B to the circumference in E, join EC, and draw the perpendicular E G.—

34 Best form of rafters

Now $AB : AD = AC : AE$, and $AE = \frac{AD \times AC}{AB}$, and AE is inversely as AB, and may therefore represent its strength in relation to the weight actually lying on it. Also the support which CB gives to AB is as CE, because CE is perpendicular to AB. Therefore the form which renders $AE \times EC$ a maximum seems to be that which has the greatest strength. But $AC : AE = EC : EG$, and $EG = \frac{AE . EC}{AC}$, and is therefore proportional to AE.EC. Now E G is a maximum when B is in F, and a square pitch is in this respect the strongest. But it is very doubtful whether this construction is deduced from just principles. There is another strain to which the leg A B is exposed, which is not taken into the account. This arises from the curvature which it unavoidably acquires by the transverse pressure of its load. In this state it is pressed in its own direction by the abutment and load of the other leg. The relation between this strain and the resistance of the piece is not very distinctly known. Euler has given a dissertation on this subject (which is of great importance, because it affects posts and pillars of all kinds; and it is very well known that a post of ten feet long and six inches square will bear with great safety a weight which would crush a post of the same scantling and 20 feet long in a minute); but his determination has not been acquiesced in by the first mathematicians. Now it is in relation to these two strains that the strength of the rafter should be adjusted. The fineness of the support given by the other leg is of no consequence, if its own strength is inferior to the strain. The force which tends to crush the leg A B, by compressing it in its curved state, is to its weight as A B to B D, as is easily seen by the composition of forces; and its incurvation by this force has a relation to it, which is of intricate determination. It is contained in the properties demonstrated by Bernoulli of the elastic curve. This determination also includes the relation between the curvature and the length of the piece. But the whole of this seemingly simple problem is of much more difficult investigation than Mr Muller was aware of; and his rules for the pitch of a roof, and for the sally of a dock gate, which depends on the same principles, are of no value. He is, however, the first author who attempted to solve either of these problems on mechanical principles susceptible of precise reasoning. Belidor's solutions, in his *Architecture Hydraulique*, are below notice.

Reasons of economy have made carpenters prefer a low pitch; and although this does diminish the support given by the opposite leg faster than it increases the relative strength of the other, this is not of material consequence, because the strength remaining in the opposite leg is still very great; for the supporting leg is acting against compression, in which case it is vastly stronger than the supported leg acting against a transverse strain.

But a roof of this simplicity will not do in most cases. There is no notice taken in its construction of the thrust which it exerts on the walls. Now this is the strain which is the most hazardous of all. Our ordinary walls, instead of being able to resist any considerable strain pressing them outwards, require, in general, some ties to keep them on foot. When a person thinks of the thinness and height of the walls of even a strong house, he will be surprised that they are not blown down by any strong puff of wind. A wall of three feet thick, and 60 feet high, could not withstand a wind blowing at the rate of 30 feet *per* second (in which case it acts with a force considerably exceeding two pounds on every square foot), if it were not stiffened by cross walls, joists, and roof, which all help to tie the different parts of the building together.

35 Thrust on the walls.

A carpenter is therefore exceedingly careful to avoid every horizontal thrust, or to oppose them by other forces. And this introduces another essential part into the construction of a roof, namely the *tie or beam* A C, (fig. 14.), laid from wall to wall, binding the feet A and C of the rafters together. This is the sole office of the beam; and it should be considered in no other light than as a string to prevent the roof from pushing out the walls. It is indeed used for carrying the ceiling of the apartments under it; and it is even made to support a flooring. But, considered as making part of a roof, it is merely a string; and the strain which it withstands tends to tear its parts asunder. It therefore acts with its whole absolute force, and a very small scantling would suffice if we could contrive to fasten it firmly enough to the foot of the rafter. If it is of oak, we may safely subject it to a strain of three tons for every square inch of its section. And fir will safely bear a strain of two tons for every square inch. But we are obliged to give the tie-beam much larger dimensions, that we may be able to connect it with the foot of the rafter by a mortise and tenon. Iron straps are also frequently added. By attending to this office of the tie-beam, the judicious carpenter is directed to the proper form of the mortise and tenon and of the strap. We shall consider both of these in a proper place, after we become acquainted with the various strains at the joints of a roof.

36 How avoided.

These large dimensions of the tie-beam allow us to load it with the ceilings without any risk, and even to lay floors on it with moderation and caution. But when it has a great bearing or span, it is very apt to bend downwards in the middle, or, as the workmen term it, to sway or swag; and it requires a support. The question is, where to find this support? What fixed points can we find with which to connect the middle of the tie-beam? Some ingenious carpenter thought of suspending it from the ridge by a piece of timber B D (fig. 15.), called by our carpenters the *king-post*. It must be acknowledged that there was great ingenuity in this thought. It was also perfectly just. For the weight of the rafters B A, B C tends to make them fly out

Roof. out at the foot. This is prevented by the tie-beam, and this excites a preſſure, by which they tend to compreſs each other. Suppoſe them without weight, and that a great weight is laid on the ridge B. This can be ſupported only by the butting of the rafters in their own directions A B and C B, and the weight tends to compreſs them in the oppoſite directions, and, through their intervention, to ſtretch the tie-beam. If neither the rafters can be compreſſed, nor the tie-beam ſtretched, it is plain that the triangle A B C muſt retain its ſhape, and that B becomes a fixed point, very proper to be uſed as a point of ſuſpenſion. To this point, therefore, is the tie-beam ſuſpended by means of the king-poſt. A common ſpectator, unacquainted with carpentry, views it very differently, and the tie-beam appears to him to carry the roof. The king-poſt appears a pillar reſting on the beam, whereas it is really a ſtring; and an iron-rod of one-ſixteenth of the ſize would have done juſt as well. The king-poſt is ſometimes mortiſed into the tie-beam, and pins put through the joint, which gives it more the look of a pillar with the roof reſting on it. This does well enough in many caſes. But the beſt method is to connect them by an iron ſtrap, like a ſtirrup, which is bolted at its upper ends into the king-poſt, and paſſes round the tie-beam. In this way a ſpace is commonly left between the end of the king-poſt and the upper ſide of the tie-beam. Here the beam plainly appears hanging in the ſtirrup; and this method allows us to reſtore the beam to an exact level, when it has ſunk by the unavoidable compreſſion or other yielding of the parts. The holes in the ſides of the iron ſtrap are made oblong inſtead of round; and the bolt which is drawn through all is made to taper on the under ſide; ſo that driving it farther draws the tie-beam upwards. A notion of this may be formed by looking at fig. 16. which is a ſection of the poſt and beam.

It requires conſiderable attention, however, to make this ſuſpenſion of the tie-beam ſufficiently firm. The top of the king-poſt is cut into the form of the arch-ſtone of a bridge, and the heads of the rafters are firmly mortiſed into this projecting part. Theſe projections are called joggles, and are formed by working the king-poſt out of a much larger piece of timber, and cutting off the unneceſſary wood from the two ſides; and, leſt all this ſhould not be ſufficient, it is uſual in great works to add an iron-plate or ſtrap of three branches, which are bolted into the heads of the king-poſt and rafters.

The rafters, though not ſo long as the beam, ſeem to ſtand as much in need of ſomething to prevent their bending, for they carry the weight of the covering.—This cannot be done by ſuſpenſion, for we have no fixed points above them: But we have now got a very firm point of ſupport at the foot of the king-poſt.—*Braces*, or *ſtruts*, E D, F D, (fig. 17.), are put under the middle of the rafters, where they are ſlightly mortiſed, and their lower ends are firmly mortiſed into joggles formed on the foot of the king-poſt. As theſe braces are very powerful in their reſiſtance to compreſſion, and the king-poſt equally ſo to reſiſt extenſion, the points E and F may be conſidered as fixed; and the rafters being thus reduced to half their former length, have now four times their former relative ſtrength.

37 Conſtruction of flat-topped roofs.

Roofs do not always conſiſt of two ſloping ſides meeting in a ridge. They have ſometimes a flat on the top, with two ſloping ſides. They are ſometimes formed with a double ſlope, and are called *kirb* or *manſarde roofs*. They ſometimes have a valley in the middle, and are then called M roofs. Such roofs require another piece which may be called the *truſs beam*. becauſe all ſuch frames are called *truſſes*, probably from the French word *trouſſe*, becauſe ſuch roofs are like portions of plain roofs, *trouſſés* or ſhortened.

A flat-topped roof is thus conſtructed. Suppoſe the three rafters AB, BC, CD (fig. 18.) of which AB and CD are equal, and BC horizontal. It is plain that they will be in equilibrio, and the roof have no tendency to go to either ſide. The tie-beam AD withſtands the horizontal thruſts of the whole frame, and the two rafters AB and CD are each preſſed in their own directions in conſequence of their butting with the middle rafter or truſs-beam BC. It lies between them like the keyſtone of an arch. They lean towards it, and it reſts on them. The preſſure which the truſs-beam and its load excites on the two rafters is the very ſame as if the rafters were produced till they meet in G, and a weight were laid on theſe equal to that of BC and its load. If therefore the truſs-beam is of a ſcantling ſufficient for carrying its own load, and withſtanding the compreſſion from the two rafters, the roof will be equally ſtrong (while it keeps its ſhape) as the plain roof A G D furniſhed with king-poſt and braces. We may conceive this another way. Suppoſe a plain roof AGD, without braces to ſupport the middle B and C of the rafters. Then let a beam BC be put in between the rafters, butting upon little notches cut in the rafters. It is evident that this muſt prevent the rafters from bending downwards, becauſe the points B and C cannot deſcend, moving round the centres A and D, without ſhortening the diſtance BC between them. This cannot be without compreſſing the beam BC. It is plain that B C may be wedged in, or wedges driven in between its ends B and C and the notches in which it is lodged. Theſe wedges may be driven in till they even force out the rafters GA and GD. Whenever this happens, all the mutual preſſure of the heads of theſe rafters at G is taken away, and the parts GB and GC may be cut away, and the roof ABCD will be as ſtrong as the roof AGD furniſhed with the king-poſt and braces, becauſe the truſs-beam gives a ſupport of the ſame kind at B and C as the brace would have done.

But this roof ABCD would have no firmneſs of ſhape. Any addition of weight on one ſide would deſtroy the equilibrium at the angle, would depreſs that angle, and cauſe the oppoſite one to riſe. To give it ſtiffneſs, it muſt either have ties or braces, or ſomething partaking of the nature of both. The uſual method of framing is to make the heads of the rafters butt on the joggles of two ſide-poſts BE and CF, while the truſs-beam, or ſtrut as it is generally termed by the carpenters, is mortiſed ſquare into the inſide of the heads. The lower ends E and F of the ſide-poſts are connected with the tie-beam either by mortiſes or ſtraps.

This conſtruction gives firmneſs to the frame; for the angle B cannot deſcend in conſequence of any inequality of preſſure, without forcing the other angle C to riſe. This it cannot do, being held down by the poſt CF. And the ſame conſtruction fortifies the tie-beam, which is now ſuſpended at the points E and F from

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from the points B and C, whose firmness we have just now shown.

38 They are so strong as the plain roofs.

But although this roof may be made abundantly strong, it is not quite so strong as the plain roof AGD of the same scantling. The compression which BC must sustain in order to give the same support to the rafters at B and C that was given by braces properly placed, is considerably greater than the compression of the braces. And this strain is an addition to the transverse strain which BC gets from its own load. Also this form necessarily exposes the tie-beam to cross strains. If BE is mortised into the tie-beam, then the strain which tends to depress the angle ABC presses on the tie-beam at E transversely, while a contrary strain acts on F, pulling it upwards. These strains however are small; and this construction is frequently used, being susceptible of sufficient strength, without much increase of the dimensions of the timbers; and it has the great advantage of giving free room in the garrets. Were it not for this, there is a much more perfect form represented in fig. 19. Here the two posts BE, CF are united below. All transverse action on the tie-beam is now entirely removed. We are almost disposed to say that this is the strongest roof of the same width and slope: for if the iron strap which connects the pieces BE, CF with the tie-beam have a large bolt G through it, confining it to one point of the beam, there are five points A, B, C, D, G, which cannot change their places, and there is no transverse strain in any of the connections.

When the dimensions of the building are very great, so that the pieces AB, BC, CD, would be thought too weak for withstanding the cross strains, braces may be added as is expressed in fig. 18. by the dotted lines. The reader will observe that it is not meant to leave the top flat externally: it must be raised a little in the middle to shoot off the rain. But this must not be done by incurvating the beam BC. This would soon be crushed, and spring upwards. The slopes must be given by pieces of timber added above the strutting beam.

39 Members of which the frame of a roof consists,

And thus we have completed a frame of a roof. It consists of these principal members: The rafters, which are immediately loaded with the covering; the tie-beam, which withstands the horizontal thrust by which the roof tends to fly out below and push out the walls; the king-posts, which hang from fixed points and serve to uphold the tie-beam, and also to afford other fixed points on which we may rest the braces which support the middle of the rafters; and lastly the truss or strutting-beam, which serves to give mutual abutment to the different parts which are at a distance from each other. The rafters, braces, and trusses are exposed to compression, and must therefore have not only cohesion but stiffness. For if they bend, the prodigious compressions to which they are subjected would quickly crush them in this bended state. The tie-beams and king-posts, if performing no other office but supporting the roof, do not require stiffness, and their places might be supplied by ropes, or by rods of iron of one-tenth part of the section that even the smallest oak stretcher requires. These members require no greater dimensions than what is necessary for giving sufficient joints, and any more is a needless expence and load. All roofs, however complicated, consist of these essential parts, and if pieces of timber are to be found which perform none of these offices, they must be pronounced useless, and they are frequently hurtful, by producing cross strains in some other piece. In a roof properly constructed there should be no such strains. All the timbers, except those which immediately carry the covering, should be either pushed or drawn in the direction of their length. And this is the rule by which a roof should always be examined.

40 Are susceptible of numberless combinations and varieties.

These essential parts are susceptible of numberless combinations and varieties. But it is a prudent maxim to make the construction as simple, and consisting of as few parts, as possible. We are less exposed to the imperfections of workmanship, such as loose joints, &c. Another essential harm arises from many pieces, by the compression and the shrinking of the timber in the cross direction of the fibres. The effect of this is equivalent to the shortening of the piece which butts on the joint. This alters the proportions of the sides of the triangle on which the shape of the whole depends. Now in a roof such as fig. 18. there is twice as much of this as in the plain pent roof, because there are two posts. And when the direction of the butting pieces is very oblique to the action of the load, a small shrinking permits a great change of shape. Thus in a roof of what is called pediment pitch, where the rafters make an angle of 30 degrees with the horizon, half an inch compression of the king-post will produce a sagging of an inch, and occasion a great strain on the tie-beam if the posts are mortised into it. In fig. 2. of the roofs in the article ARCHITECTURE, half an inch shrinking of each of the two posts will allow the middle to sagg above five inches. Fig. 1. of the same plate is faulty in this respect, by cutting the strutting-beam in the middle. The strutting-beam is thus shortened by three shrinkings, while there is but one to shorten the rafters. The consequence is, that the truss which is included within the rafters will sagg away from them, and then they must bend in the middle till they again rest on this included truss. This roof is, however, constructed on the whole on good principles, and we adduce it only to show the advantages of simplicity. This cutting of the trussing-beam is unavoidable, if we would preserve the king-post. But we are in doubt whether the service performed by it in this case will balance the inconvenience. It is employed only to support the middle of the upper half of each rafter, which it does but imperfectly, because the braces and strut must be cut half through at their crossing: if these joints are made tight, as a workman would wish to do, the settling of the roof will cause them to work on each other crosswise with irresistible force, and will undoubtedly strain them exceedingly.

Plate XLVIII.

This method of including a truss within the rafters of a pent roof is a very considerable addition to the art of carpentry. But to insure its full effect, it should always be executed in the manner represented in fig. 1. Plate XLVIII. with butting rafters under the principal ones, butting on joggles in the heads of the posts. Without this the strut-beam is hardly of any service. We would therefore recommend fig. [illegible] as a proper construction of a trussed roof, and the king-post which is placed in it may be employed to support the upper part of the rafters, and also for preventing the tie-beam from bending in either direction in consequence of its great compression. It will also give a [illegible] for the great burdens which are sometimes necessary in

Plate [illegible]

Roof.

a theatre. The machinery has no other firm points to which it can be attached; and the portion of the single rafters which carry this king-post are but short, and therefore may be considerably loaded with safety.

We observe in the drawings which we sometimes have of Chinese buildings, that the trussing of roofs is understood by them. Indeed they must be very experienced carpenters. We see wooden buildings run up to a great height, which can be supported only by such trussing. One of these is sketched in fig. 21. There are some very excellent specimens to be seen in the buildings at Deptford, belonging to the victualling-office, usually called the *Red House*, which were erected about the year 1788, and we believe are the performance of Mr James Arrow of the Board of Works, one of the most intelligent artists in this kingdom.

41 Remarks addressed to practical carpenters.

Thus have we given an elementary, but a rational or scientific, account of this important part of the art of carpentry. It is such, that any practitioner, with the trouble of a little reflection, may always proceed with confidence, and without resting any part of his practice on the vague notions which habit may have given him of the strength and supports of timbers, and of their manner of acting. That these frequently mislead, is proved by the mutual criticisms which are frequently published by the rivals in the profession. They have frequently sagacity enough (for it can seldom be called science) to point out glaring blunders; and any person who will look at some of the performances of Mr Price, Mr Wyatt, Mr Arrow, and others of acknowledged reputation, will readily see them distinguishable from the works of inferior artists by simplicity alone. A man without principles is apt to consider an intricate construction as ingenious and effectual; and such roofs sometimes fail merely by being ingeniously loaded with timber, but more frequently still by the wrong action of some useless piece, which produces strains that are transverse to other pieces, or which, by rendering some points too firm, cause them to be deserted by the rest in the general subsiding of the whole. Instances of this kind are pointed out by Price in his British Carpenter. Nothing shows the skill of a carpenter more than the distinctness with which he can foresee the changes of shape which must take place in a short time in every roof. A knowledge of this will often correct a construction which the mere mathematician thinks unexceptionable, because he does not reckon on the actual compression which must obtain, and imagines that his triangles, which sustain no cross strains, invariably retain their shape till the pieces break. The sagacity of the experienced carpenter is not, however, enough without science for perfecting the art. But when he knows how much a particular piece will yield to compression in one case, science will tell him, and nothing but science can do it, what will be the compression of the same piece in another very different case. Thus he learns how far it will now yield, and then he proportions the parts so to each other, that when all have yielded according to their strains, the whole is of the shape he wished to produce, and every joint is in a state of firmness. It is here that we observe the greatest number of improprieties. The iron straps are frequently in positions not suited to the actual strain on them, and they are in a state of violent twist, which both tends strongly to break the strap, and to cripple the pieces which they surround.

In like manner, we frequently see joints or mortises in a state of violent strain on the tenons, or on the heels and shoulders. The joints were perhaps properly shaped to the primitive form of the truss; but by its settling, the bearing on the push is changed: the brace, for example, in a very low pitched roof, comes to press with the upper part of the shoulder, and, acting as a powerful lever on the tenon, breaks it. In like manner, the lower end of the brace, which at first butted firmly and squarely on the joggle of the king-post, now presses with one corner with prodigious force, and seldom fails to splinter off on that side. We cannot help recommending a maxim of Mr Perronet the celebrated hydraulic architect of France, as a golden rule, viz. to make all the shoulders of butting pieces in the form of an arch of a circle, having the opposite end of the piece for its centre. Thus, in fig. 18. if the joggle-joint B be of this form, having A for its centre, the sagging of the roof will make no partial bearing at the joint; for in the sagging of the roof, the piece AB turns or bends round the centre A, and the counter-pressure of the joggle is still directed to A, as it ought to be. We have just now said *bends* round A. This is too frequently the case, and it is always very difficult to give the tenon and mortise in this place a true and invariable bearing. The rafter pushes in the direction BA, and the beam resists in the direction AD. The abutment should be perpendicular to neither of these but in an intermediate direction, and it ought also to be of a curved shape. But the carpenters perhaps think that this would weaken the beam too much to give it this shape in the shoulder; they do not even aim at it in the heel of the tenon. The shoulder is commonly even with the surface of the beam. When the bearing therefore is on this shoulder, it causes the foot of the rafter to slide along the beam till the heel of the tenon bears against the outer end of the mortise (See Price's *British Carpenter*, Plate C. fig. I K). This abutment is perpendicular to the beam in Price's book, but it is more generally pointed a little outwards below, to make it more secure against starting. The consequence of this construction is, that when the roof settles, the shoulder comes to bear at the inner end of the mortise, and it rises at the outer, and the tenon taking hold of the wood beyond it, either tears it out or is itself broken. This joint therefore is seldom trusted to the strength of the mortise and tenon, and is usually secured by an iron strap, which lies obliquely to the beam, to which it is bolted by a large bolt quite through, and then embraces the outside of the rafter foot. Very frequently this strap is not made sufficiently oblique, and we have seen some made almost square with the beam. When this is the case, it not only keeps the foot of the rafter from flying out, but it binds it down. In this case, the rafter acts as a powerful lever, whose fulcrum is the inner angle of the shoulder, and then the strap never fails to cripple the rafter at the point. All this can be prevented only by making the strap very long and very oblique, and by making its outer end (the stirrup part) square with its length, and making a notch in the ratter foot to receive it. It cannot now cripple the rafter, for it will rise along with it, turning round the

the bolt at its inner end. We have been thus particular on this joint, because it is here that the ultimate strain of the whole roof is exerted, and its situation will not allow the excavation necessary for making it a good mortise and tenon.

Similar attention must be paid to some other straps, such as those which embrace the middle of the rafter, and connect it with the post or truss below it. We must attend to the change of shape produced by the sagging of the roof, and place the strap in such a manner as to yield to it by turning round its bolt, but so as not to become loose, and far less to make a fulcrum for any thing acting as a lever. The strains arising from such actions, in framings of carpentry which change their shape by sagging, are enormous, and nothing can resist them.

We shall close this part of the subject with a simple method, by which any carpenter, without mathematical science, may calculate with sufficient precision the strains or thrusts which are produced on any point of his work, whatever be the obliquity of the pieces.

Let it be required to find the horizontal thrust acting on the tie-beam AD of fig. 18. This will be the same as if the weight of the whole roof were laid at G on the two rafters GA and GD. Draw the vertical line GH. Then, having calculated the weight of the whole roof that is supported by this single frame ABCD, including the weight of the pieces AB, BC, CD, BE, CF themselves, take the number of pounds, tons, &c. which expresses it from any scale of equal parts, and set it from G to H. Draw HK, HL parallel to GD, GA, and draw the line KL, which will be horizontal when the two sides of the roof have the same slope. Then ML measured on the same scale will give the horizontal thrust, by which the strength of the tie-beam is to be regulated. GL will give the thrust which tends to crush the rafters, and LM will also give the force which tends to crush the strut-beam BC.

In like manner, to find the strain on the king-post BD of fig. 17. consider that each brace is pressed by half the weight of the roofing laid on BA or BC, and this pressure, or at least its hurtful effect, is diminished in the proportion of BA to DA, because the action of gravity is vertical, and the effect which we want to counteract by the braces is in a direction E *e* perpendicular to BA or BC. But as this is to be resisted by the brace *f* E acting in the direction *f* E, we must draw *f e* perpendicular to E *e*, and suppose the strain augmented in the proportion of E *e* to E *f*.

Having thus obtained in tons, pounds, or other measures, the strains which must be balanced at *f* by the cohesion of the king-post, take this measure from the scale of equal parts, and set it off in the directions of the braces to G and H, and complete the parallelogram G *f* HK; and *f* K measured on the same scale will be the strain on the king-post.

43 Of the strength of trusses.

The artist may then examine the strength of his truss upon this principle, that every square inch of oak will bear at an average 7000 pounds compressing or stretching it, and may be safely loaded with 3500 for any length of time; and that a square inch of fir will in like manner securely bear 2500. And, because straps are used to resist some of these strains, a square inch of well wrought tough iron may be safely strained by 50,000 pounds. But the artist will always recollect, that we cannot have the same confidence in iron as in timber. The faults of this last are much more easily perceived; and when timber is too weak, it gives us warning of its failure, by yielding sensibly before it breaks. This is not the case with iron; and much of its service depends on the honesty of the blacksmith.

Roof.

44 Sketch of some roofs, &c.

In this way may any design of a roof be examined. We shall here give the reader a sketch of two or three trussed roofs, which have been executed in the chief varieties of circumstances which occur in common practice.

Fig. 22. is the roof of St Paul's Church, Covent Garden, London, the work of Inigo Jones. Its construction is singular. The roof extends to a considerable distance beyond the building, and the ends of the tie-beams support the Tuscan corniche, appearing like the mutules of the Doric order. Such a roof could not rest on the tie-beam. Inigo Jones has therefore supported it by a truss below it; and the height has allowed him to make this extremely strong with very little timber. It is accounted the highest roof of its width in London. But this was not difficult, by reason of the great height which its extreme width allowed him to employ without hurting the beauty of it by too high a pitch. The supports, however, are disposed with judgment.

Fig. 23. is a kind or mansard roof by Price, and supposed to be of large dimensions, having braces to carry the middle of the rafters.

It will serve exceedingly well for a church having pillars. The middle part of the tie-beam being taken away, the strains are very well balanced, so that there is no risk of its pushing aside the pillars on which it rests.

Fig. 24. is the celebrated roof of the theatre of the university of Oxford, by Sir Christopher Wren. The span between the walls is 75 feet. This is accounted a very ingenious, and is a singular performance. The middle part of it is almost unchangeable in its form; but from this circumstance it does not distribute the horizontal thrust with the same regularity as the usual construction. The horizontal thrust on the tie-beam is about twice the weight of the roof, and is withstood by an iron strap below the beam, which stretches the whole width of the building in the form of a rope, making part of the ornament of the ceiling.

In all the roofs which we have considered hitherto the thrust is discharged entirely from the walls by the tie-beam. But this cannot always be done. We frequently want great elevation within, and arched ceilings. In such cases, it is a much more difficult matter to keep the walls free of all pressure outwards, and there are few buildings where it is completely done. Yet this is the greatest fault of a roof. We shall point out the methods which may be most successfully adopted.

We have said that a tie-beam just performs the office of a string. We have said the same of the king-post. Now suppose two rafters AB, BC (fig. 25.) moveable about the joint B, and resting on the top of the walls. If the line BD be suspended from B, and the two lines DA, DC be fastened to the feet of the rafters, and if these lines be incapable of extension, it is plain that all thrust is removed from the walls as effectually

Roof. fectually as by a common tie-beam. And by ſhortening BD to B*d*, we gain a greater inſide height, and more room for an arched ceiling. Now if we ſubſtitute a king-poſt BD (fig. 26.) and two ſtretchers or hammer-beams DA, DC for the other ſtrings, and connect them firmly by means of iron ſtraps, we obtain our purpoſe.

Let us compare this roof with a tie-beam roof in point of ſtrain and ſtrength. Recur to fig. 25. and complete the parallelogram ABCF, and draw the diagonals AC, BF croſſing in E. Draw BG perpendicular to CD. We have ſeen that the weight of the roof (which we may call W) is to the horizontal thruſt at C as BF to EC; and if we expreſs this thruſt by T, we have $T = \frac{W \times EC}{BF}$. We may at preſent conſider BC as a lever moveable round the joint B, and pulled at C in the direction EC by the horizontal thruſt, and held back by the ſtring pulling in the direction CD. Suppoſe that the forces in the directions EC and CD are in equilibrio, and let us find the force S by which the ſtring CD is ſtrained. Theſe forces muſt (by the property of the lever) be inverſely as the perpendiculars drawn from the centre of motion on the lines of their direction. Therefore BG : BE = T : S, and $S = T \times \frac{BE}{BG}, = W \times \frac{BE.EC.}{BF.BG}$

Therefore the ſtrain upon each of the ties DA and DC is always greater than the horizontal thruſt or the ſtrain on a ſimple tie-beam. This would be no great inconvenience, becauſe the ſmalleſt dimenſions that we could give to theſe ties, ſo as to procure ſufficient fixtures to the adjoining pieces, are always ſufficient to withſtand this ſtrain. But although the ſame may be ſaid of the iron ſtraps which make the ultimate connections, there is always ſome hazard of imperfect work, cracks or flaws, which are not perceived. We can judge with tolerable certainty of the ſoundneſs of a piece of timber, but cannot ſay ſo much of a piece of iron. Moreover, there is a prodigious ſtrain excited on the king-poſt, when BG is very ſhort in compariſon of BE, namely, the force compounded of the two ſtrains S and S on the ties DA and DC.

But there is another defect from which the ſtraight tie-beam is entirely free. All roofs ſettle a little.—When this roof ſettles, and the points B and D deſcend, the legs BA, BC muſt ſpread further out, and thus a preſſure outwards is excited on the walls. It is ſeldom therefore that this kind of roof can be executed in this ſimple form, and other contrivances are neceſſary for counteracting this ſupervening action on the walls. Fig. 27. is one of the beſt which we have ſeen, and is executed with great ſucceſs in the circus or equeſtrian theatre in Edinburgh, the width being 60 feet. The pieces EF and ED help to take off ſome of the weight, and by their greater uprightneſs they exert a ſmaller thruſt on the walls. The beam D*d* is alſo a ſort of truſs-beam, having ſomething of the ſame effect. Mr Price has given another very judicious one of this kind, Britiſh Carpenter, Plate IK, fig. C, from which the tie-beam may be taken away, and there will remain very little thruſt on the walls. Thoſe which he has given in the following Plate K are, in our opinion, very faulty. The whole ſtrain in theſe laſt roofs tends to break the rafters and ties tranſverſely, and the fixtures of the ties are alſo not well calculated to reſiſt the ſtrain to which the pieces are expoſed. We hardly think that theſe roofs could be executed.

It is ſcarcely neceſſary to remind the reader, that in all that we have delivered on this ſubject, we have attended only to the conſtruction of the principal rafters or truſſes. In ſmall buildings all the rafters are of one kind; but in great buildings the whole weight of the covering is made to reſt on a few principal rafters, which are connected by beams placed horizontally, and either mortiſed into them or ſcarfed on them. Theſe are called *purlins*. Small rafters are laid from purlin to purlin; and on theſe the laths for tiles, or the ſkirting-boards for ſlates, are nailed. Thus the covering does not immediately reſt on the principal frames. This allows ſome more liberty in their conſtruction, becauſe the garrets can be ſo divided that the principal rafters ſhall be in the partitions and the reſt left unincumbered. This conſtruction is ſo far analogous to that of floors which are conſtructed with girders, binding, and bridging joiſts.

It may appear preſuming in us to queſtion the propriety of this practice. There are ſituations in which it is unavoidable, as in the roofs of churches, which can be allowed to reſt on ſome pillars. In other ſituations, where partition-walls intervene at a diſtance not too great for a ſtout purlin, no principal rafters are neceſſary, and the whole may be roofed with ſhort rafters of very ſlender ſcantling. But in a great uniform roof, which has no intermediate ſupports, it requires at leaſt ſome reaſons for preferring this method of carcaſe-roofing to the ſimpler method of making all the rafters alike. The method of carcaſe-roofing requires the ſelection of the greateſt logs of timber, which are ſeldom of equal ſtrength and ſoundneſs with thinner rafters. In theſe the outſide planks can be taken off, and the beſt part alone worked up. It alſo expoſes to all the defects of workmanſhip in the mortiſing of purlins, and the weakening of the rafters by this very mortiſing; and it brings an additional load of purlins and ſhort rafters. A roof thus conſtructed may ſurely be compared with a floor of ſimilar conſtruction. Here there is not a ſhadow of doubt, that if the girders were ſawed into planks, and theſe planks laid as joiſts ſufficiently near for carrying the flooring boards, they will have the ſame ſtrength as before, except ſo much as is taken out of the timber by the ſaw. This will not amount to one-tenth part of the timber in the binding, bridging, and ceiling joiſts, which are an additional load; and all the mortiſes and other joinings are ſo many diminutions of the ſtrength of the girders; and as no part of a carpenter's work requires more ſkill and accuracy of execution, we are expoſed to many chances of imperfection. But, not to reſt on theſe conſiderations, however reaſonable they may appear, we ſhall relate an experiment made by one on whoſe judgment and exactneſs we can depend.

Two models of floors were made 18 inches ſquare of the fineſt uniform deal, which had been long ſeaſoned. The one conſiſted of ſimple joiſts, and the other was framed with girders, binding, bridging, and ceiling joiſts. The plain joiſts of the one contained the ſame quantity of timber with the girders alone of the other, and both were made by a moſt accurate workman. They were placed in wooden trunks 18 inches ſquare within,

Ro

46 General obſervations.

47 Confirmed by experiment.

within, and rested on a strong projection on the inside. Small shot was gradually poured in upon the floors, so as to spread uniformly over them. The plain joisted floor broke down with 487 pounds, and the carcase floor with 327. The first broke without giving any warning; the other gave a violent crack when 294 pounds had been poured in.

A trial had been made before, and the loads were 341 and 482. But the models having been made by a less accurate hand, it was not thought a fair specimen of the strength which might be given to a carcase floor.

The only argument of weight which we can recollect in favour of the compound construction of roofs is, that the plain method would prodigiously increase the quantity of work, would admit nothing but long timber, which would greatly add to the expence, and would make the garrets a mere thicket of planks. We admit this in its full force; but we continue to be of the opinion that plain roofs are greatly superior in point of strength, and therefore should be adopted in cases where the great difficulty is to insure this necessary circumstance.

It would appear very neglectful to omit an account of the roofs put on round buildings, such as domes, cupolas, and the like. They appear to be the most difficult tasks in the carpenter art. But the difficulty lies entirely in the mode of framing, or what the French call the *trait de charpenterie*. The view which we are taking of the subject, as a part of mechanical science, has little connection with this. It is plain, that whatever form of a truss is excellent in a square building must be equally so as one of the frames of a round one; and the only difficulty is how to manage their mutual intersections at the top. Some of them must be discontinued before they reach that length, and common sense will teach us to cut them short alternately, and always leave as many, that they may stand equally thick as at their first springing from the base of the dome. Thus the length of the purlins which reach from truss to truss will never be too great.

The truth is, that a round building which gathers in at top, like a glass-house, a potter's kiln, or a spire steeple, instead of being the most difficult to erect with stability, is of all others the easiest. Nothing can show this more forcibly than daily practice, where they are run up without centres and without scaffoldings; and it requires gross blunders indeed in the choice of their outline to put them in much danger of falling from a want of equilibrium. In like manner, a dome of carpentry can hardly fall, give it what shape or what construction you will. It *cannot* fall unless some part of it flies out at the bottom: an iron hoop round it, or straps at the joinings of the trusses and purlins, which make an equivalent to a hoop, will effectually secure it. And as beauty requires that a dome shall spring almost perpendicularly from the wall, it is evident that there is hardly any thrust to force out the walls. The only part where this is to be guarded against is, where the tangent is inclined about 40 or 50 degrees to the horizon. Here it will be proper to make a course of firm horizontal joinings.

We doubt not but that domes of carpentry will now be raised of great extent. The Halle du Bles at Paris, of 200 feet in diameter, was the invention of an intelligent carpenter, the Sieur Moulineau. He was not by any means a man of science, but had much more mechanical knowledge than artisans usually have, and was convinced that a very thin shell of timber might not only be so shaped as to be nearly in equilibrio, but that if hooped or firmly connected horizontally, it would have all the stiffness that was necessary; and he presented his project to the magistracy of Paris. The grandeur of it pleased them, but they doubted of its possibility. Being a great public work, they prevailed on the Academy of Sciences to consider it. The members, who were competent judges, were instantly struck with the justness of Mr Moulineau's principles, and astonished that a thing so plain had not been long familiar to every house-carpenter. It quickly became an universal topic of conversation, dispute, and cabal, in the polite circles of Paris. But the Academy having given a very favourable report of their opinion, the project was immediately carried into execution, and soon completed, and now stands as one of the great exhibitions of Paris.

The construction of this dome is the simplest thing that can be imagined. The circular ribs which compose it consist of planks nine feet long, 13 inches broad, and three inches thick; and each rib consists of three of these planks bolted together in such a manner that two joints meet. A rib is begun, for instance, with a plank of three feet long standing between one of six feet and another of nine, and this is continued to the head of it. No machinery was necessary for carrying up such small pieces, and the whole went up like a piece of bricklayer's work. At various distances these ribs were connected horizontally by purlins and iron straps, which made so many hoops to the whole. When the work had reached such a height, that the distance of the ribs was two-thirds of the original distance, every third rib was discontinued, and the space was left open and glazed. When carried so much higher that the distance of the ribs is one-third of the original distance, every second rib (now consisting of two ribs very near each other) is in like manner discontinued, and the void is glazed. A little above this the heads of the ribs are framed into a circular ring of timber, which forms a wide opening in the middle; over which is a glazed canopy or umbrella, with an opening between it and the dome for allowing the heated air to get out. All who have seen this dome say, that it is the most beautiful and magnificent object they have ever beheld.

The only difficulty which occurs in the construction of wooden domes is, when they are unequally loaded, by carrying a heavy lanthern or cupola in the middle. In such a case, if the dome were a mere shell, it would be crushed in at the top, or the action of the wind on the lanthern might tear it out of its place. Such a dome must therefore consist of trussed frames. Mr Price has given a very good one in his plate OP, tho' much stronger in the trusses than there was any occasion for. This causes a great loss of room, and throws the lights of the lanthern too far up. It is evidently copied from Sir Christopher Wren's dome of St Paul's church in London; a model of propriety in its particular situation, but by no means a general model of a wooden dome. It rests on the brick cone within it; and Sir Christopher has very ingeniously made use of it for stiffening this cone, as any intelligent

Roof.

perſon will perceive by attending to its conſtruction (See *Price*, Plate OP).

Fig. 28. repreſents a dome executed in the Regiſter Office in Edinburgh by James and Robert Adams, and is very agreeable to mechanical principles. The ſpan is 50 feet clear, and the thickneſs is only 4½.

49 Further remarks on Norman roofs.

We cannot take leave of the ſubject without taking ſome notice of what we have already ſpoken of with commendation by the name of *Norman roofs*. We called them *Norman*, becauſe they were frequently executed by that people ſoon after their eſtabliſhment in Italy and other parts of the ſouth of Europe, and became the prevailing taſte in all the great baronial caſtles. Their architects were rivals to the Saracens and Moors, who about that time built many Chriſtian churches; and the architecture which we now call Gothic ſeems to have ariſen from their joint labours.

The principle of a Norman roof is extremely ſimple. The rafters all butted on joggled king-poſts AF, BG, CH, &c. (fig. 29.), and braces or ties were then diſpoſed in the intervals. In the middle of the roof HB and HD are evidently ties in a ſtate of extenſion, while the poſt CH is compreſſed by them. Towards the walls on each ſide, as between B and F, and between F and L, they are braces, and are compreſſed. The ends of the poſts were generally ornamented with knots of flowers, emboſſed globes, and the like, and the whole texture of the truſs was exhibited and dreſſed out.

This conſtruction admits of employing very ſhort timbers; and this very circumſtance gives greater ſtrength to the truſs, becauſe the angle which the brace or tie makes with the rafter is more open. We may alſo perceive that all thruſt may be taken off the walls. If the pieces AF, BF, LF, be removed, all the remaining diagonal pieces act as ties, and the pieces directed to the centre act as ſtruts; and it may alſo be obſerved, that the principle will apply equally to a ſtraight or flat roof or to a floor. A floor ſuch as *a b c*, having the joint in two pieces *a b*, *b c*, with a ſtrut *b d*, and two ties, will require a much greater weight to break it than if it had a continued joiſt *a c* of the ſame ſcantling. And, laſtly, a piece of timber acting as a tie is much ſtronger than the ſame piece acting as a ſtrut: for in the latter ſituation it is expoſed to bending, and when bent it is much leſs able to withſtand a very great ſtrain. It muſt be acknowledged, however, that this advantage is balanced by the great inferiority of the joints in point of ſtrength. The joint of a tie depends wholly on the pins; for this reaſon ties are never uſed in heavy works without ſtrapping the joints with iron. In the roofs we are now deſcribing the diagonal pieces of the middle part only act purely as ties, while thoſe towards the ſides act as ſtruts or braces. Indeed they are ſeldom of ſo very ſimple conſtruction as we have deſcribed, and are more generally conſtructed like the ſketch in fig. 30. having two ſets of rafters AB, *a b*, and the angles are filled up with thin planks, which give great ſtiffneſs and ſtrength. They have alſo a double ſet of purlins, which connect the different truſſes. The roof being thus divided into ſquares, other purlins run between the middle points E of the rafters. The rafter is ſupported at E by a check put between it and the under rafter. The middle point of each ſquare of the roof is ſupported and ſtiffened by four braces, one of which ſprings from *e*, and its oppoſite from the ſimilar part of the adjoining truſs. The other two braces ſpring from the middle points of the lower purlins, which go horizontally from *a* and *b* to the next truſs, and are ſupported by planks in the ſame manner as the rafters. By this contrivance the whole becomes very ſtiff and ſtrong.

50 Conclu

We hope that the reader will not be diſpleaſed with our having taken ſome notice of what was the pride of our anceſtors, and conſtituted a great part of the finery of the grand hall, where the feudal lord aſſembled his vaſſals and diſplayed his magnificence. The intelligent mechanic will ſee much to commend; and all who look at theſe roofs admire their apparent flimſy lightneſs, and wonder at their duration. We have ſeen a hall of 57 feet wide, the roof of which was in four diviſions, like a kirb roof, and the truſſes were about 16 feet aſunder. They were ſingle rafters, as in fig. 30. and their dimenſions were only eight inches by ſix. The roof appeared perfectly ſound, and had been ſtanding ever ſince the year 1425.

Much of what has been ſaid on this ſubject may be applied to the conſtruction of wooden bridges and the centres for turning the arches of ſtone-bridges. But the farther diſcuſſion of this muſt be the employment of another article.

ROOFING, the materials of which the roof of a houſe is compoſed. See the foregoing article.

ROOK, in ornithology. See Corvus.

Rooks are very deſtructive of corn, eſpecially of wheat. They ſearch out the lands where it is ſown, and watching them more carefully than the owners, they perceive when the ſeed firſt begins to ſhoot up its blade; this is the time of their feeding on it. They will not be at the pains of ſearching for it at random in the ſown land, for that is more trouble than ſo ſmall a grain will requite them for: but as ſoon as theſe blades appear, they are by them directed, without loſs of time or pains, to the places where the grains lie; and in three or four days time they will root up ſuch vaſt quantities, that a good crop is often thus deſtroyed in embryo. After a few days the wheat continuing to grow, its blades appear green above ground; and then the time of danger from theſe birds is over; for then the ſeeds are ſo far robbed of their mealy matter, that they are of no value to that bird, and it will no longer give itſelf the trouble to deſtroy them.

Wheat that is ſown ſo early as to ſhoot up its green blades before the harveſt is all carried in, is in no danger from theſe birds; becauſe while it is in a ſtate worth their ſearching for, the ſcattered corn in the harveſt fields is eaſier come at, and they feed wholly on this, neglecting the ſown grain. But as this cannot always be done, the farmers, to drive away theſe ravenous and miſchievous birds, dig holes in the ground and ſtick up the feathers of rooks in them, and hang up dead rooks on ſticks in ſeveral parts of the fields: but all this is of very little uſe; for the living rooks will tear up the ground about the feathers, and under the dead ones, to ſteal the ſeeds. A much better way than either is to tear ſeveral rooks to pieces, and to ſcatter the pieces over the fields; but this laſts but a little while, for the kites and other birds of prey ſoon carry off the pieces and feed upon them. A gun is a good remedy while

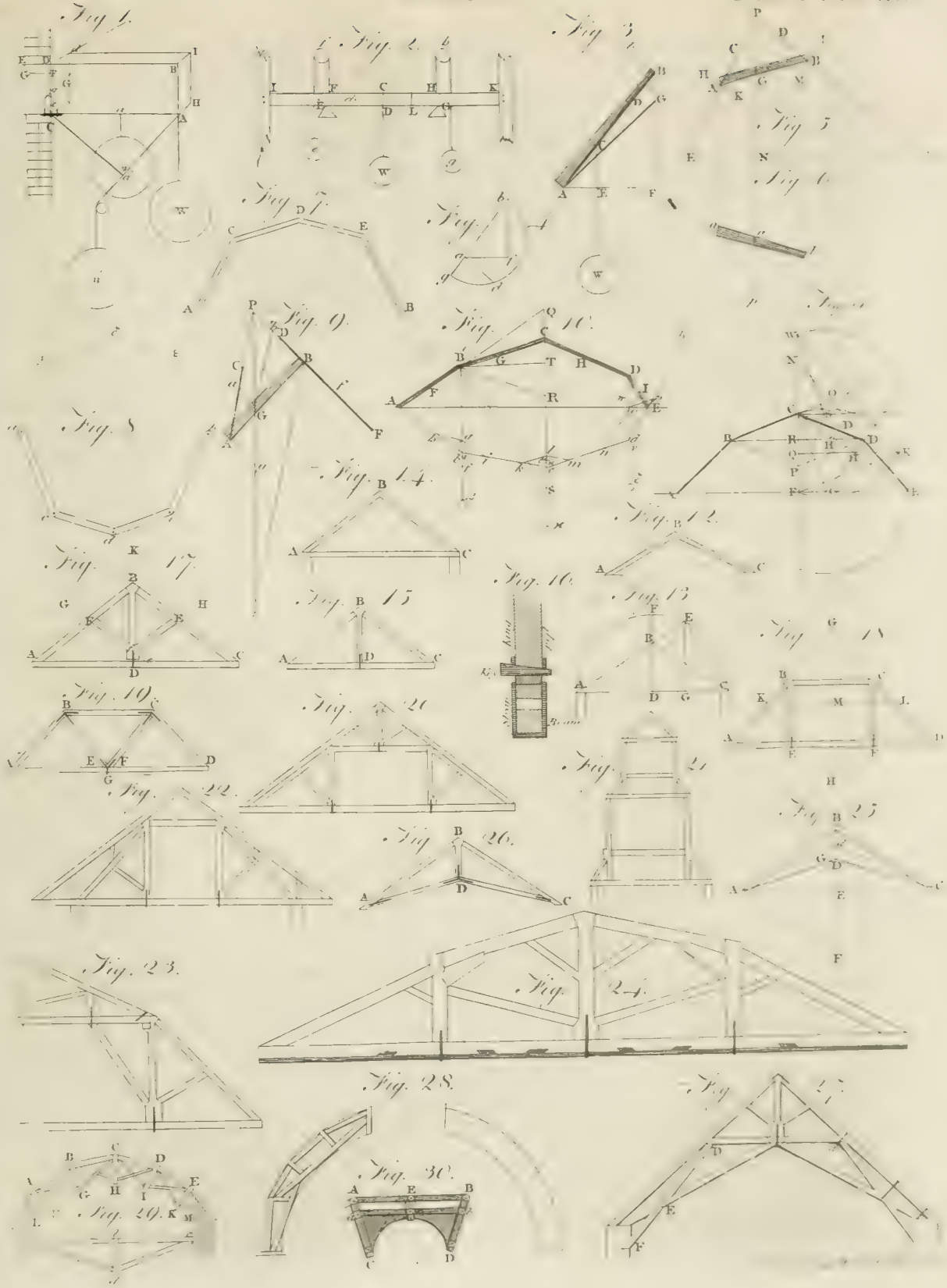
Fig. 1.
Fig. 2.
Fig. 3
Fig. 5
Fig. 6
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Fig. 24.
Fig. 25
Fig. 26.
Fig. 27
Fig. 28.
Fig. 29.
Fig. 30.
Roof
Post
Beam

while the person who has it is present; but as soon as he is gone, they will return with redoubled vigour to the field and tear up every thing before them.

The best remedy the farmer has is to watch well the time of the corn's being in the condition in which they feed upon it; and as this lasts only a few days, he should keep a boy in constant pay to watch the field from day-break till the dusk of the evening. Every time they settle upon the ground to fly over it, the boy is to holloa, and throw up a dead rook into the air: this will always make them rise; and by degrees they will be so tired of this constant disturbance, that they will seek out other places of preying, and will leave the ground even before the time of the corn's being unfit for them. The reason of their rising at the tossing up of their dead fellow-creature is, that they are a bird extremely apprehensive of danger, and they are always alarmed when one of their comrades rises. They take this for the rising of an out-bird, and all fly off at the signal.

ROOKE (Sir George), a gallant naval commander, born of an ancient and honourable family in Kent, in 1650. His merit raised him by regular steps to be vice-admiral of the blue: in which station he served in the battle of La Hogue, on the 22d of May 1692; when it was owing to his vigorous behaviour, that the last stroke was given on that important day, which threw the French entirely into confusion. But the next day he obtained still more glory; for he had orders to go into La Hogue, and burn the enemy's ships as they lay there. There were 13 large men of war, which had crowded as far up as possible; and the transports, tenders, and ammunition ships, were disposed in such a manner that it was thought impossible to burn them. Besides, the French camp was in sight, with all the French and Irish troops that were to have been employed in the invasion of England; and several batteries were raised on the coast, well provided with heavy artillery. The vice-admiral made the necessary preparations for obeying his orders, but found it impossible to carry in the ships of his squadron: he therefore ordered his light frigates to ply in close to the shore; and having manned out all his boats, went himself to give directions for the attack, burnt that very night six three-deck-ships, and the next day six more, from 76 to 60 guns, together with most of the transports and ammunition vessels; and this under the fire of all the batteries just mentioned, and in sight of all the French and Irish troops: yet this bold action cost the lives of no more than ten men. The vice-admiral's behaviour on this occasion appeared so great to King William, that having no opportunity at that time of promoting him, he settled a pension of 1000l. per annum on him for life; and afterwards going to Portsmouth to view the fleet, went on board Mr Rooke's ship, dined with him, and then conferred on him the honour of knighthood, he having a little before made him vice-admiral of the red.

In consequence of other services he was in 1694 raised to the rank of admiral of the blue: towards the close of the next year, he was admiral of the white; and was also appointed admiral and commander in chief in the Mediterranean.

During King William's reign, Sir George was twice elected member for Portsmouth; and upon the accession of Queen Anne in 1702, he was constituted vice-admiral and lieutenant of the admiralty of England, as also lieutenant of the fleets and seas of this kingdom. Upon the declaration of war against France, he was ordered to command a fleet sent against Cadiz, the duke of Ormond having the command of the land forces. On his passage home, receiving an account that the galleons, under the escort of a strong French squadron, were got into the harbour of Vigo, he resolved to attack them; and on the 11th of October came before the harbour of Rondondello, where the French commander had neglected nothing necessary for putting the place into the best posture of defence. But notwithstanding this, a detachment of 15 English and 10 Dutch men of war, of the line of battle, with all the fire-ships, were ordered in; the frigates and bomb-vessels followed; the great ships moved after them, and the army landed near Rondondello. The whole service was performed under Sir George's directions, with admirable conduct and bravery; for, in short, all the ships were destroyed or taken, prodigious damage done to the enemy, and vast wealth acquired by the allies. For this action Sir George received the thanks of the House of Commons, a day of thanksgiving was appointed both by the queen and the states-general, and Sir George was promoted to a seat in the privy-council; yet, notwithstanding this, the House of Lords resolved to inquire into his conduct at Cadiz. But he so fully justified himself, that a vote was passed, approving his behaviour.

In the spring of the year 1704, Sir George commanded the ships of war which convoyed King Cha. III. of Spain to Lisbon. In July, he attacked Gibraltar; when, by the bravery of the English seamen, the place was taken on the 24th, though the town was extremely strong, well furnished with ammunition, and had 100 guns mounted, all facing the sea and the narrow passes to the land: An action which was conceived and executed in less than a week; though it has since endured sieges of many months continuance, and more than once baffled the united forces of France and Spain. This brave officer being at last obliged, by the prevalence of party-spirit, to quit the service of his country, retired to his seat in Kent; where he spent the remainder of his days as a private gentleman.

He was thrice married; and by his second lady Mrs Luttrell left one son. He died January 24. 1708-9, in his 58th year, and was buried in Canterbury cathedral, where a monument is erected to his memory. In his private life he was a good husband and a kind master, lived hospitably towards his neighbours, and left behind him a moderate fortune; so moderate, that when he came to make his will, it surprised those who were present: but Sir George assigned the reason in a few words, "I do not leave much (said he), but what I leave was honestly gotten; it never cost a sailor a tear, or the nation a farthing."

ROOM, a chamber, parlour, or other apartment in a house. See ARCHITECTURE and VENTILATION.

ROOT, among botanists, denotes that part of a plant which imbibes the nutritious juices of the earth, and transmits them to the other parts. See PLANT and RADIX.

Colours extracted from Roots. See *Colour-Making*, n° 41.

Root, Rope-making.

ROOT, in algebra and arithmetic, denotes any number which, multiplied by itself once or oftener, produces any other number; and is called the *square*, *cube*, *biquadrate*, &c. *root*, according to number of multiplications. Thus, 2 is the square-root of 4; the cube-root of 8; the biquadrate-root of 16, &c.

ROPE, is a word too familiar to need a definition; and we need say no more than that it is only applied to a considerable collection of twisted fibres. Smaller bands are called lines, strings, cords; and it is not applied with great propriety even to those, unless they are composed of smaller things of the same kind twisted together. Two hay bands twisted together would be called a *rope*. All the different kinds of this manufacture, from a fishing-line or whip-cord to the cable of a first rate ship of war, go by the general name of CORDAGE.

Ropes are made of every substance that is sufficiently fibrous, flexible, and tenacious, but chiefly of the barks of plants. The Chinese and other orientals even make them of the ligneous parts of several plants, such as certain bamboos and reeds, the stems of the aloes, the fibrous covering of the cocoa nut, the filaments of the cotton pod, and the leaves of some grasses, such as the sparte (*Lygeum*, Linn.) The aloe (*Agave*, Linn.) and the sparte exceed all others in strength. But the barks of plants are the most productive of fibrous matter fit for this manufacture. Those of the Linden tree (*Teloa*), of the willow, the bramble, the nettle, are frequently used: but hemp and flax are of all others the best; and of these the hemp is preferred, and employed in all cordage exceeding the size of a line, and even in many of this denomination.

Hemp is very various in its useful qualities. These are great strength, and the length and fineness of the fibre. Being a plant of very greedy growth, it sucks up much of the unaltered juices of the soil, and therefore differs greatly according to its soil, climate, and culture. The best in Europe comes to us through Riga, to which port it is brought from very distant places to the southward. It is known by the name of *Riga rein* (that is, clean) hemp. Its fibre is not the longest (at least in the dressed state in which we get it) of all others, but it is the finest, most flexible, and strongest. The next to this is supposed to be the Petersburgh braak hemp. Other hemps are esteemed nearly in the following order:—Riga outshot, Petersburgh outshot, hemp from Koningsburgh, Archangel, Sweden, Memel. *Chucking* is a name given to a hemp that comes from various places, long in the fibre, but coarse and harsh, and its strength is inferior to hemps which one would think weaker. Its texture is such, that it does not admit splitting with the hatchet so as to be more completely dressed. It is therefore kept in its coarse form, and used for inferior cordage. It is however a good and strong hemp, but will not make fine work. There are doubtless many good hemps in the southern parts of Europe, but little of them is brought to our market. Codilla, half clean, &c. are portions of the above-mentioned hemps, separated by the dressing, and may be considered as broken fibres of those hemps.

Only the first qualities are manufactured for the rigging of the royal navy and for the ships of the East India company.

Rope-making.

ROPE-MAKING is an art of very great importance; and there are few that better deserve the attention of the intelligent observer. Hardly any art can be carried on without the assistance of the rope-maker. Cordage makes the very sinews and muscles of a ship; and every improvement which can be made in its preparation, either in respect to strength or pliableness, must be of immense service to the mariner, and to the commerce and the defence of nations.

1 Importance of the art of rope-making.

We shall give a very short account of the manufacture, which will not indeed fully instruct the artificers, but will give such a view of the process as shall enable the reader to judge, from principle, of the propriety of the different parts of the manipulation, and perceive its defects, and the means for removing them.

2 The aim which is to unite the strength of numerous fibres.

The aim of the rope-maker is to unite the strength of a great number of fibres. This would be done in the completest manner by laying the fibres parallel to each other, and fastening the bundle at the two ends: but this would be of very limited use, because the fibres are short, not exceeding three feet and a half at an average. They must therefore be entangled together, in such a manner that the strength of a fibre shall not be able to draw it out from among the rest of the bundle. This is done by twisting or twining them together, which causes them mutually to compress each other. When the fibres are so disposed in a long skain, that their ends succeed each other along its length, without many of them meeting in one place, and this skain is twisted round and round, we may cause them to compress each other to any degree we please, and the friction on a fibre which we attempt to pull out may be more than its cohesion can overcome. It will therefore break. Consequently, if we pull at this twisted skain, we will not separate it by drawing one parcel out from among the rest, but the whole fibres will break; and if the distribution of the fibres has been very equable, the skain will be nearly of the same strength in every part. If there is any part where many ends of fibres meet, the skain will break in that part.

3 These fibres may be so much twisted as to break with the least additional twist.

We know very well that we can twist a skain of fibres so very hard, that it will break with any attempt to twist it harder. In this state all the fibres are already strained to the utmost of their strength. Such a skain of fibres can have no strength. It cannot carry a weight, because each fibre is already strained in the same manner as if loaded with as much weight as it is able to bear. What we have said of this extreme case is true in a certain extent of every degree of twist that we give the fibres. Whatever force is actually exerted by a twisted fibre, in order that it may sufficiently compress the rest to hinder them from being drawn out, must be considered as a weight hanging on that fibre, and must be deduced from its absolute strength of cohesion, before we can estimate the strength of the skain. The strength of the skain is the remainder of the absolute strength of the fibres, after we have deduced the force employed in twisting them together.

4 Practical inference.

From this observation may be deduced a fundamental principle in rope-making, that all twisting, beyond what is necessary for preventing the fibres from being drawn out without breaking, diminishes the strength of the cordage, and should be avoided when in our power. It is of importance to keep this in mind.

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It is necessary then to twist the fibres of hemp together, in order to make a rope; but we should make a very bad rope if we contented ourselves with twisting together a bunch of hemp sufficiently large to withstand the strains to which the rope is to be exposed. As soon as we let it go out of our hands, it would untwist itself, and be again a loose bundle of hemp; for the fibres are strained, and they are in a considerable degree elastic; they contract again, and thus untwist the rope or skain. It is necessary to contrive the twist in such a manner, that the tendency to untwist in one part may act against the same tendency in another and balance it. The process, therefore, of rope-making is more complicated.

The first part of this process is SPINNING of ROPE-YARNS. This is done in various ways, and with different machinery, according to the nature of the intended cordage. We shall confine our description to the manufacture of the larger kinds, such as are used for the standing and running rigging of ships.

An alley or walk is inclosed for the purpose, about 200 fathoms long, and of a breadth suited to the extent of the manufacture. It is sometimes covered above. At the upper end of this ROPE-WALK is set up the spinning-wheel, of a form resembling that in fig. 1. The band of this wheel goes over several rollers called WHIRLS, turning on pivots in brass holes. The pivots at one end come through the frame, and terminate in little hooks. The wheel being turned by a winch, gives motion in one direction to all those whirls. The spinner has a bundle of dressed hemp round his waist, with the two ends meeting before him. The hemp is laid in this bundle in the same way that women spread the flax on the distaff. There is great variety in this; but the general aim is to lay the fibres in such a manner, that as long as the bundle lasts there may be an equal number of the ends at the extremity, and that a fibre may never offer itself double or in a bight. The spinner draws out a proper number of fibres, twists them with his fingers, and having got a sufficient length detached, he fixes it to the hook of a whirl. The wheel is now turned, and the skain is twisted, becoming what is called a ROPE-YARN, and the spinner walks backwards DOWN the rope-walk. The part already twisted draws along with it more fibres out of the bundle. The spinner aids this with his fingers, supplying hemp in due proportion as he walks away from the wheel, and taking care that the fibres come in equally from both sides of his bundle, and that they enter always with their ends, and not by the middle, which would double them. He should also endeavour to enter every fibre at the heart of the yarn. This will cause all the fibres to mix equally in making it up, and will make the work smooth, because one end of each fibre is by this means buried among the rest, and the other end only lies outward; and this, in passing through the grasp of the spinner, who presses it tight with his thumb and palm, is also made to lie smooth. The greatest fault that can be committed in spinning is to allow a small thread to be twisted off from one side of the hemp, and then to cover this with hemp supplied from the other side: for it is evident that the fibres of the central thread make very long spirals, and the skin of fibres which covers them must be much more oblique. This covering has but little connection with what is below it, and will easily be detached. But even while it remains, the yarn cannot be strong; for on pulling it, the middle part, which lies the straightest, must bear all the strain, while the outer fibres, that are lying obliquely, are only drawn a little more parallel to the axis. This defect will always happen if the hemp be supplied in a considerable body to a yarn that is then spinning small. Into whatever part of the yarn it is made to enter, it becomes a sort of loosely connected wrapper. Such a yarn, when untwisted a little, will have the appearance of fig. 2. while a good yarn looks like fig. 3. A good spinner therefore endeavours always to supply the hemp in the form of a thin flat skain with his left hand, while his right is employed in grasping firmly the yarn that is twining off, and in holding it tight from the whirl, that it may not run into loops or KINKS.

It is evident, that both the arrangement of the fibres and the degree of twisting depend on the skill and dexterity of the spinner, and that he must be instructed, not by a book, but by a master. The degree of twist depends on the rate of the wheel's motion, combined with the retrograde walk of the spinner.

We may suppose him arrived at the *lower* end of the walk, or as far as is necessary for the intended length of his yarn. He calls out, and another spinner immediately detaches the yarn from the hook of the whirl, gives it to another, who carries it aside to the reel, and this second spinner attaches his own hemp to the whirl hook. In the mean time, the first spinner keeps fast hold of the end of his yarn; for the hemp, being dry, is very elastic, and if he were to let it go out of his hand it would instantly untwist, and become little better than loose hemp. He waits, therefore, till he sees the reeler begin to turn the reel, and he goes slowly up the walk, keeping the yarn of an equal tightness all the way, till he arrives at the wheel, where he waits with his yarn in hand till another spinner has finished his yarn. The first spinner takes it off the whirl hook, joins it to his own, that it may follow it on the reel, and begins a new yarn.

8 Different kinds of rope yarns.

Rope-yarns, for the greatest part of the large rigging, are from a quarter of an inch to somewhat more than a third of an inch in circumference, or of such a size that 160 fathoms weigh from 3½ to 4 pounds when white. The different sizes of yarns are named from the number of them contained in a strand of a rope of three inches in circumference. Few are so coarse that 16 will make a strand of British cordage; 18 is not unfrequent for cable yarns, or yarns spun from hards and coarse hemp; 25 is, we believe, the finest size which is worked up for the rigging of a ship. Much finer are indeed spun for sounding lines, fishing lines, and many other marine uses and for the other demands of society. Ten good spinners will work up above 600 weight of hemp in a day; but this depends on the weather. In very dry weather the hemp is very elastic, and requires great attention to make smooth work. In the warmer climates, the spinner is permitted to moisten the rag with which he grasps the yarn in his right hand for each yarn. No work can be done in an open spinning walk in rainy weather, because the yarns would not take on the tar, if immediately tarred, and would rot if kept on the reel for a long time.

The second part of the process is the conversion of the

Rope-making.

9 Method of converting the rope-yarns into ropes, cords, or lines.

the yarns into what may with propriety be called a rope, cord, or line. That we may have a clear conception of the principle which regulates this part of the process, we shall begin with the simplest possible case, the union of two yarns into one line. This is not a very usual fabric for rigging, but we select it for its simplicity.

When hemp has been split into very fine fibres by the hatchet, it becomes exceedingly soft and pliant, and after it has lain for some time in the form of fine yarn, it may be unreeled and thrown loose, without losing much of its twist. Two such yarns may be put on the whirl of a spinning wheel, and thrown, like flaxen yarn, so as to make sewing thread. It is in this way, indeed, that the sailmaker's sewing thread is manufactured; and when it has been kept on the reel, or on balls or bobbins, for some time, it retains its twist as well as its uses require. But this is by no means the case with yarns spun for great cordage. The hemp is so elastic, the number of fibres twisted together is so great, and the diameter of the yarn (which is a sort of lever on which the elasticity of the fibre exerts itself) is so considerable, that no keeping will make the fibres retain this constrained position. The end of a rope-yarn being thrown loose, it will immediately untwist, and this with considerable force and speed. It would, therefore, be a fruitless attempt to twist two such yarns together; yet the ingenuity of man has contrived to make use of this very tendency to untwist not only to counteract itself, but even to produce another and a permanent twist, which requires force to undo it, and which will recover itself when this force is removed. Every person must recollect that, when he has twisted a packthread very hard with his fingers between his two hands, if he slackens the thread by bringing his hands nearer together, the packthread will immediately curl up, running into loops or kinks, and will even twist itself into a neat and firm cord. Familiar as this fact is, it would puzzle any person not accustomed to these subjects to explain it with distinctness. We shall consider it with some care, not as a piece of mechanical curiosity, but as a fundamental principle in this manufacture, which will give us clear instructions to direct us in the most delicate part of the whole process. And we beg the attention of the artists themselves to a thing which they seem to have overlooked.

Let *m d*, *n d* (fig. 4.) be two yarns fixed to one point *d*, and let both of them be twisted, each round its own axis, in the direction *a b c*, which will cause the fibres to lie in a screw form, as represented in the figure. If the end *d* of the yarn *m d* were at liberty to turn round the point *d*, it would turn accordingly, as often as the end *m* is turned round, and the yarn would acquire no twist; but being attached to some solid body it cannot turn without turning this body. It has, however, this tendency, and the body must be forcibly prevented from turning. If it be held fast for a time, and then let go, it will be turned round, and it will not stop till it has turned as often as the end *m* has been twisted, and now all the twist will be undone. Thus it is the tendency of the yarn *m d* to untwist at the end *d* (because it is kept fast at *m*), which produces this motion of the body attached to it at *d*. What we have said of the yarn *m d* is equally true of the yarn *n d*. Both tend to turn, and will turn, the body attached at *d* round the common axis, in the same direction in which they are twisted. Let fig. 5. be supposed a cross section of the two yarns touching each other at *d*, and there glued to a board. The fibres of each pull obliquely, that is, they both pull away from the board, and pull laterally. The direction of this lateral pull of the fibres in the circumference of each yarn is represented by the little darts drawn round the circumferences. These actions directly oppose and balance each other at *d*; but in the semicircles *o e t*, *t f o*, they evidently conspire to turn the board round in the same direction. The same may be said of the outer halves of any circles described within these. In the inner halves of these inner circles the actions of some fibres oppose each other; but in every circle there are many more conspiring actions than opposing ones, and the conspiring actions exert themselves by longer levers, so that their joint momentum greatly exceeds that of the opposing forces. It may be demonstrated, that if all the fibres exert equal forces, the force which tends to turn the board round the common axis is $\frac{1}{4}$ of the force employed to twist both the yarns.

Suppose then that the solid body to which the yarns are attached is at liberty to turn round the common axis; it cannot do this without carrying the yarns round with it. They must, therefore, turn round each other, and thus compose a rope or cord *k l*, having its component yarns (now called *strands*) lying in a direction opposite to that of the fibres in each strand. The rope will take this twist, while each of the strands is really untwisting, and the motion will not stop till all is again in equilibrio. If the yarns had no diameter and no rigidity, their elastic contraction would not be balanced till the cord had made half the number of turns which had been given to that part of the yarn which is thus doubled up. But, as the yarns have a sensible diameter, the same ultimate contraction of the fibres will be expended by the twisting of the cord in fewer turns, even if the yarns had no rigidity. The turns necessary for this purpose will be so much fewer, in proportion to the twist of the yarns, as the fibres of the yarn lie more obliquely, that is, as the yarns are more twisted. But further, this contractile force has to overcome the rigidity or stiffness of the yarns. This requires force merely to *bend* it into the screw form; and therefore, when all is again at rest, the fibres are in a state of strain, and the rope is not so much closed by doubling as it would have been had the yarns been softer. If any thing can be done to it in this state which will soften the yarns, it will twist itself more up. It has therefore a *tendency* to twist more up; and if this be aided by an external force which will bend the strands, this will happen. Beating it with a soft mallet will have this effect; or, if it be forcibly twisted till the fibres are allowed to contract as much as they would have done had the yarn been perfectly soft, the cord will keep this twist without any effort; and this must be considered as its most perfect state, in relation to the degree of twist originally given to the yarns. It will have no tendency to run into kinks, which is both troublesome and dangerous, and the fibres will not be exerting any useless effort.

To attain this state should therefore be the aim of every part of this second process; and this principle should be kept in view through the whole of it.

The component parts of a rope are called strands, as

has been already observed; and the operation of uniting them with a permanent twist is called *laying* or *closing*, the latter term being chiefly appropriated to cables and other very large cordage.

Lines and cordage less than 1½ inches circumference are laid at the spinning-wheel. The workman fastens the ends of each of two or three yarns to separate whirl-hooks. The remote ends are united in a knot. This is put on one of the hooks of a swivel called the *loper*, represented in fig. 6. and care is taken that the yarns are of equal lengths and twist. A piece of soft cord is put on the other hook of the loper; and, being put over a pulley several feet from the ground, a weight is hung on it, which stretches the yarn. When the workman sees that they are equally stretched, he orders the wheel to be turned in the same direction as when twining the yarns. This would twine them harder; but the swivel of the loper gives way to the strain, and the yarns immediately twist around each other, and form a line or cord. In doing this the yarns lose their twist. This is restored by the wheel. But this simple operation would make a very bad line, which would be slack, and would not hold its twist; for, by the turning of the loper, the strands twist immediately together, to a great distance from the loper. By this turning of the loper the yarns are untwisted. The wheel restores their twist only to that part of the yarns that remains separate from the others, but cannot do it in that part where they are already twined round each other, because their mutual pressure prevents the twist from advancing. It is, therefore, necessary to retard this tendency to twine, by keeping the yarns apart. This is done by a little tool called the top, represented in fig. 7.

It is a truncated cone, having three or more notches along its sides, and a handle called the staff. This is put between the strands, the small end next the loper, and it is pressed gently into the angle formed by the yarns which lie in the notches. The wheel being now turned, the yarns are more twisted, or *hardened up*, and their pressure on the top gives it a strong tendency to come out of the angle, and also to turn round. The workman does not allow this till he thinks the yarns sufficiently hardened. Then he yields to the pressure, and the top comes away from the swivel, which immediately turns round, and the line begins to lay.—Gradually yielding to this pressure, the workman slowly comes up towards the wheel, and the laying goes on, till the top is at last close to the wheel, and the work is done. In the mean time, the yarns are shortened, both by the twining of each and the laying of the cord. The weight, therefore, gradually rises. The use of this weight is evidently to oblige the yarn to take a proper degree of twist, and not run into kinks.

A cord or line made in this way has always some tendency to twist a little more. However little friction there may be in the loper, there is some, so that the turns which the cord has made in the laying are not enough to balance completely the elasticity of the yarns; and the weight being appended causes the strands to be more nearly in the direction of the axis, in the same manner as it would stretch and untwist a little any rope to which it is hung. On the whole, however, the twist of a laid line is permanent, and not like that upon thread doubled or thrown in a mill, which remains only in consequence of the great softness and flexibility of the yarn.

Rope-making.

11 Large or hawser-laid cordage is differently formed.

The process for laying or closing large cordage is considerably different from this. The strands of which the rope is composed consist of many yarns, and require a considerable degree of hardening. This cannot be done by a whirl driven by a wheel band; it requires the power of a crank turned by the hand. The strands, when properly hardened, become very stiff, and when bent round the top are not able to transmit force enough for laying the heavy and unpliant rope which forms beyond it. The elastic twist of the hardened strands must, therefore, be assisted by an external force. All this requires a different machinery and a different process.

12 Machinery and mode of using it in this case.

At the upper end of the walk is fixed up the *tackle-board*, fig. 8. This consists of a strong oaken plank called a *breast board*, having three or more holes in it, such as A, B, C, fitted with brass or iron plates. Into these are put iron cranks, called heavers, which have hooks, or forelocks, and keys, on the ends of their spindles. They are placed at such a distance from each other, that the workmen do not interfere with each other while turning them round. This breast-board is fixed to the top of strong posts well secured by struts or braces facing the lower end of the walk. At the lower end is another breast-board fixed to the upright posts of a sledge, which may be loaded with stones or other weights. Similar cranks are placed in the holes of this breast-board. The whole goes by the name of the *sledge*; (see fig. 9.) The top necessary for closing large cordage is too heavy to be held in the hand. It therefore has a long staff, which has a truck on the end. This rests on the ground; but even this is not enough in laying great cables. The top must be supported on a carriage, as shown in fig. 10. where it must lie very steady, and need no attendance, because the master workman has sufficient employment in attending to the manner in which the strands close behind the top, and in helping them by various methods. The top is, therefore, fixed to the carriage by letting its staff to the two upright posts. A piece of soft rope, or strap, is attached to the handle of the top by the middle, and its two ends are brought back and wrapped several times tight round the rope, in the direction of its twist, and bound down. This is shown at W, and it greatly assists the laying of the rope by its friction. This both keeps the top from flying too far from the point of union of the strands, and brings the strands more regularly into their places.

The first operation is *warping* the yarns. At each end of the walk are frames called warping frames, which carry a great number of reels or winches filled with rope-yarn. The foreman of the walk takes off a yarn end from each, till he has made up the number necessary for his rope or strand, and bringing the ends together, he passes the whole through an iron ring fixed to the top of a stake driven into the ground, and draws them through: then a knot is tied on the end of the bundle, and a workman rubs it through this ring till the intended length is drawn off the reels. The end is made fast at the bottom of the walk, or at the sledge, and the foreman comes back along the skein of yarns, to see that none are hanging slacker than the rest. He

takes

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takes up in his hand ſuch as are ſlack, and draws them tight, keeping them ſo till he reaches the upper end, where he cuts the yarns to a length, again adjuſts their tightneſs, and joins them all together in a knot, to which he fixes the hook of a tackle, the other block of which is fixed to a firm poſt, called the *warping-poſt*. The ſkain is well ſtretched by this tackle, and then ſeparated into its different ſtrands. Each of theſe is knotted apart at both ends. The knots at their upper ends are made faſt to the hooks of the cranks in the tackle board, and thoſe at their lower ends are faſtened to the cranks in the ſledge. The ſledge itſelf is kept in its place by a tackle, by which the ſtrands are again ſtretched in their places, and every thing adjuſted, ſo that the ſledge ſtands ſquare on the walk, and then a proper weight is laid on it. The tackle is now cut off, and the cranks are turned at both ends, in the contrary direction to the twiſt of the yarns. (In ſome kinds of cordage the cranks are turned the ſame way with the ſpinning twiſt). By this the ſtrands are twiſted and hardened up; and as they contract by this operation, the ſledge is dragged up the walk. When the foreman thinks the ſtrands ſufficiently hardened, which he eſtimates by the motion of the ſledge, he orders the heavers at the cranks to ſtop. The middle ſtrand at the ſledge is taken off from the crank. This crank is taken out, and a ſtronger one put in its place at D, fig. 9. The other ſtrands are taken off from their cranks, and all are joined on the hook which is now in the middle hole. The top is then placed between the ſtrands, and, being preſſed home to the point of their union, the carriage is placed under it, and it is firmly fixed down. Some weight is taken off the ſledge. The heavers now begin to turn at both ends. Thoſe at the tackle-board continue to turn as they did before; but the heavers at the ſledge turn in the oppoſite direction to their former motion, ſo that the cranks at both ends are now turning one way. By the motion of the ſledge crank the top is forced away from the knot, and the rope begins to cloſe. The heaving at the upper end reſtores to the ſtrand the twiſt which they are conſtantly loſing by the laying of the rope. The workmen judge of this by making a chalk mark on intermediate points of the ſtrands, where they lie on the ſtakes which are ſet up along the walk for their ſupport. If the twiſt of the ſtrands is diminiſhed by the motion of cloſing, they will ling then, and the chalk mark will move away from the tackle board: but if the twiſt increaſes by turning the cranks at the tackle-board, the ſtrands will ſhorten, and the mark will come nearer to it.

As the cloſing of the rope advances, the whole ſhortens, and the ſledge is dragged up the walk. The top moves faſter, and at laſt reaches the upper end of the walk, the rope being now laid. In the mean time, the ſledge has moved ſeveral fathoms from the place where it was when the laying began.

Theſe motions of the ſledge and top muſt be exactly adjuſted to each other. The rope muſt be of a certain length. Therefore the ſledge muſt ſtop at a certain place. At that moment the rope ſhould be laid; that is, the top ſhould be at the tackle board. In this conſiſts the addreſs of the foreman. He has his attention directed both ways. He looks at the ſtrands, and when he ſees any of them hanging ſlacker between the ſtakes than the others, he calls to the heavers at the tackle-board to heave more upon that ſtrand. He finds it more difficult to regulate the motion of the top. It requires a conſiderable force to keep it in the angle of the ſtrands, and it is always diſpoſed to ſtart forward. To prevent or check this, ſome ſtraps of ſoft rope are brought round the ſtaff of the top, and then wrapped ſeveral times round the rope behind the top, and kept firmly down by a lanyard or bandage, as is ſhown in the figure. This both holds back the top and greatly aſſiſts the laying of the rope, cauſing the ſtrands to fall into their places, and keep cloſe to each other. This is ſometimes very difficult, eſpecially in ropes compoſed of more than three ſtrands. It will greatly improve the laying the rope, if the top have a ſharp, ſmooth, tapering pin of hard wood, pointed at the end, projecting ſo far from the middle of its ſmaller end, that it gets in between the ſtrands which are cloſing. This ſupports them, and makes their cloſing more gradual and regular. The top, its notches, the pin, and the warp or ſtrap, which is lapped round the rope, are all ſmeared with greaſe or ſoap to aſſiſt the cloſing. The foreman judges of the progreſs of cloſing chiefly by his acquaintance with the walk, knowing that when the ſledge is abreaſt of a certain ſtake the top ſhould be abreaſt of a certain other ſtake. When he finds the top too far down the walk, he ſlackens the motion at the tackle board, and makes the men turn briſkly at the ſledge. By this the top is forced up the walk, and the laying of the rope accelerates, while the ſledge remains in the ſame place, becauſe the ſtrands are loſing their twiſt, and are lengthening, while the cloſed rope is ſhortening. When, on the other hand, he thinks the top too far advanced, and fears that it will be at the head of the walk before the ſledge has got to its proper place, he makes the men heave briſkly on the ſtrands, and the heavers at the ſledge crank to work ſoftly.—This quickens the motion of the ſledge by ſhortening the ſtrands; and by thus compenſating what has been overdone, the ſledge and top come to their places at once, and the work appears to anſwer the intention.

13 Some improprieties in this proceſs pointed out, and

But this is a bad manner of proceeding. It is evident, that if the ſtrands be kept to one degree of hardneſs throughout, and the heaving at the ſledge be uniformly continued, the rope will be uniform. It may be a little longer or ſhorter than was intended, and the laying may be too hard in proportion to the twiſt of the ſtrands, in which caſe it will not keep it; or it may be too ſlack, and the rope will tend to twiſt more. Either of theſe faults are diſcoverable by ſlackening the rope before it come off the hooks, and it may then be corrected. But if the error in one place be compenſated by that in another, this will not be eaſily ſeen before taking off the hooks; and if it is a large and ſtiff rope, it will hardly ever come to an equable ſtate in its different parts, but will be apt to run into loops during ſervice.

It is, therefore of importance to preſerve the uniformity throughout the whole. Mr Du Hamel, in his great work on rope-making, propoſes a method which is very exact, but requires an apparatus which is cumberſome, and which would be much in the way of the workmen. We think that the following method would be extremely eaſy, embarraſs no one, and is perfectly exact. Having determined the proportion between the velocity of the top and ſledge, let the diameter of the

14 Another method propoſed, &c

truck of the top carriage be to that of another truck fixed to the sledge, in the proportion of the velocity of the top to that of the sledge. Let a mark be made on the rim of each; let the man at the sledge make a signal every time that the mark on the sledge truck is uppermost. The mark on the carriage truck should be uppermost at the same instant; and in this way the foreman knows the pace of the rope at all times without quitting his station. Thus, in making a cable of 120 fathoms, it is usual to warp the yarns 180 fathoms, and to harden them up to 140 before closing. Therefore, in the closing, the top must move 140 fathoms, and the sledge only 20. The diameter of the carriage truck should therefore be seven times the diameter of the sledge truck.

We have hitherto proceeded on the supposition, that the twist produced by the cranks is propagated freely along the strands and along the closing rope. But this is not the case. It is almost unavoidable that the twist is greater in the neighbourhood of the crank which produces it. The strands are frequently of very considerable weight, and lie heavy on the stakes. Force is therefore necessary to overcome their friction, and it is only the overplus that is propagated beyond the stake. It is proper to lift them up from time to time, and let them fall down again, as the sawer does with his marking line. This helps the twist to run along the strand. But this is not enough for the closed rope, which is of much greater weight, and much stiffer.—When the top approaches the tackle board, the heaving at the sledge could not cause the strands immediately behind the top to close well, without having previously produced an extravagant degree of twist in the intermediate rope. The effort of the crank must therefore be assisted by men stationed along the rope, each furnished with a tool called a *woolder*. This is a stout oak stick about three feet long, having a strap of soft rope-yarn or cordage fastened on its middle or end. The strap is wrapped round the laid rope, and the workman works with the stick as a lever, twisting the rope round in the direction of the crank's motion. The woolders should keep their eye on the men at the crank, and make their motion correspond with his. Thus they send forward the twist produced by the crank, without either increasing or diminishing it, in that part of the rope which lies between them and the sledge.

It is usual before taking the rope from the hooks to heave a while at the sledge end, in order to harden the rope a little. They do this so as to take it up about $\frac{1}{25}$. The propriety or impropriety of this practice depends entirely on the proportion which has been previously observed between the hardening of the strands and the twisting of the closing rope. It is, in all cases, better to adjust these precisely, and then nothing remains to be done when the top has arrived at the upper end of the walk. The making of two strand and three strand line pointed out the principle which should be attended to in this case; namely, that the twist given to the rope in laying should be precisely what a perfectly soft rope would give to itself. We do not see any reason for thinking that the proportion between the number of turns given to the strands and the number of turns given to the laid line by its own elasticity, will vary by any difference of diameter. We would therefore recommend to the artists to settle this proportion by experiment. The line should be made of the finest, smallest, and softest threads or yarn. These should be made into strands, and the strands should be hardened up in the direction contrary to the spinning twist. The rope should then be laid, hanging perpendicularly, with a small weight on the top to keep it down, and a very small weight at the end of the rope. The number of turns given to the strands should be carefully noticed, and the number of turns which the rope takes of itself in closing. The weight should then be taken off, and the rope will make a few turns more. This whole number will never exceed what is necessary for the equilibrium; and we imagine it will not fall much short of it. We are clearly of opinion an exact adjustment of this particular will tend greatly to improve the art of rope-making, and that experiments on good principles for ascertaining this proportion would be highly valuable, because there is no point about which the artists themselves differ more in their opinions and practice.

15 Mode of manufacture.

The cordage, of which we have been describing the manufacture, is said to be hawser-laid. It is not uncommon to make ropes of four strands. These are used for shrouds, and this cordage is therefore called shroud-laid cordage. A rope of the same size and weight must be smoother when it has four strands, because the strands are smaller; but it is more difficult to lay close. When three cylindrical strands are simply laid together, they leave a vacuity at the axis amounting to $\frac{1}{5}$ of the section of a strand. This is to be filled up by compressing the strands by twisting them. Each must fill up $\frac{1}{10}$ of it by changing its shape; and $\frac{1}{5}$ of this change is made on each side of the strand. The greatest change of shape therefore made on any one part of a strand amounts only to $\frac{1}{100}$ of the section of the strand. The vacuity between four cylinders is $\frac{1}{11}$ of one of them. This being divided into eight parts, is $\frac{1}{88}$ of a strand, and is the greatest compression which any part of it has to undergo. This is nearly five times greater than the former, and must be more difficult to produce. Indeed it may be seen by looking at the figures 11. and 12. that it will be easier to compress a strand into the obtuse angle of 120 degrees than into the right angle of 90; and without reasoning more about the matter, it appears that the difficulty will increase with the number of strands. Six strands must touch each other, and form an arch leaving a hollow in the middle, into which one of the strands will slip, and then the rest will not completely surround it. Such a rope would be uneven on the surface. It would be weak; because the central strand would be slack in comparison of the rest, and would not be exerting its whole force when they are just ready to break. We see then that a four strand rope must be more difficult to lay well than a hawser-laid rope. With care, however, they may be laid well and close, and are much used in the royal navy.

16 And with a heart in the middle.

Ropes are made of four strands, with a heart or strand in the middle. This gives no additional strength, for the reason just now given. Its only use is to make the work better and more easy, and to support all the strands at the same distance from the axis of the rope. This is of great consequence; because when they are at unequal distances from the axis, some must be more sloping than others, and they will not resist alike. This heart

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heart is made of inferior ſtuff, ſlack laid, and of a ſize juſt equal to the ſpace it is to fill. When a rope of this fabric has been long uſed and become unſerviceable, and is opened out, the heart is always found cut and chaffed to pieces, like very ſhort oakum. This happens as follows: When the rope is violently ſtrained, it ſtretches greatly; becauſe the ſtrands ſurround the axis obliquely, and the ſtrain draws them into a poſition more parallel to the axis. But the heart has not the obliquity of parts, and cannot ſtretch ſo much; at the ſame time, its yarns are firmly graſped by the hard ſtrands which ſurround them; they muſt therefore be torn into ſhort pieces.

The proceſs for laying a rope with a heart is not very different from that already deſcribed. The top has a hole pierced through it, in the direction of the axis. The ſkain or ſtrand intended for the heart paſſes through this hole, and is ſtretched along the walk. A boy attends it, holding it tight as it is taken into the cloſing rope. But a little attention to what has been ſaid will ſhow this method to be defective. The wick will have no more turns than the laid rope; and as it lies in the very axis, its yarns will be much ſtraighter than the ſtrands. Therefore when the rope is ſtrained and ſtretched, the wick cannot ſtretch as much as the laid ſtrands; and being firmly graſped by them, it muſt break into ſhort pieces, and the ſtrands, having loſt their ſupport in thoſe places, will ſink in, and the cordage grow looſe. We ſhould endeavour to enable all to ſtretch alike. The wick therefore ſhould be twiſted in the ſame manner as the ſtrands, perhaps even a little more. It will thus communicate part of its ſtrength to the rope. Indeed it will not be ſo uniformly ſolid, and may chance to have three ſpiral vacuities. But that this does no harm, is quite evident from the ſuperior ſtrength of cable-laid cordage, to be deſcribed preſently, which have the ſame vacuities. In this way are the main and fore ſtays made for ſhips of the line. They are thought ſtronger than hawſer-laid ropes, but unfit for running rigging; becauſe their ſtrands are apt to get out of their places when the rope is drawn into loops. It is alſo thought that the heart retains water, rots, and communicates its putreſaction to the ſurrounding ſtrands.

17 Recapitulation.

Such is the general and eſſential proceſs of rope-making. The fibres of hemp are twiſted into yarns, that they may make a line of any length, and ſtick among each other with a force equal to their own coheſion. The yarns are made into cords of permanent twiſt by laying them; and, that we may have a rope of any degree of ſtrength, many yarns are united in one ſtrand, for the ſame reaſon that many fibres were united in one yarn; and in the courſe of this proceſs it is in our power to give the rope a ſolidity and hardneſs which makes it leſs penetrable by water, which would rot it in a ſhort while. Some of theſe purpoſes are inconſiſtent with others: and the ſkill of a rope-maker lies in making the beſt compenſation; ſo that the rope may on the whole be the beſt in point of ſtrength, pliancy, and duration, that the quantity of hemp in it can produce.

18 Mode of making cable-laid cordage.

There is another ſpecies of cordage in very general uſe. A rope of two or more ſtrands may be uſed as a ſtrand, in order to compoſe a ſtill larger rope; and in this manner are cables and other ground tackle commonly made; for this reaſon ſuch cordage is called CABLE-LAID cordage.

The proceſs of cable-laying hardly differs from that of hawſer-laying. Three ropes, in their ſtate of permanent twiſt, may be twiſted together; but they will not hold it, like fine thread, becauſe they are ſtiff and elaſtic. They muſt therefore be treated like ſtrands for a hawſer. We muſt give them an *additional* twiſt, which will diſpoſe them to lay or cloſe themſelves; and this diſpoſition muſt be aided by the workmen at the ſledge. We ſay the twiſt ſhould be an addition to their twiſt as a rope. A twiſt in the oppoſite direction will indeed give them a diſpoſition to cloſe behind the top; but this will be very ſmall, and the ropes (now ſtrands) will be exceedingly open, and will become more open in laying. The twiſt is therefore given in the direction of their twiſt as a rope, or oppoſite to that of the primary ſtrands, of which the ropes are compoſed. Theſe primary ſtrands are therefore partly untwiſted in cable-laying a rope, in the ſame manner as the yarns are untwiſted in the uſual proceſs of rope-making.

We need not inſiſt farther on this part of the manufacture. The reader muſt be ſenſible that the hawſers intended for ſtrands of a cable muſt not be ſo much twiſted as thoſe intended to remain hawſers; for the twiſt given to a finiſhed hawſer is preſumed to be that which renders it moſt perfect, and it muſt be injured by any addition. The preciſe proportion, and the diſtribution of the working up between the hardening of the ſtrands and cloſing the cable, is a ſubject about which the artiſts are no better agreed than in the caſe of hawſer-laid cordage. We did not enter on this ſubject while deſcribing the proceſs, becauſe the introduction of reaſonings and principles would have hurt the ſimplicity of the deſcription. The reader being now acquainted with the different parts of the manipulation, and knowing what can be done on any occaſion, will now be able to judge of the propriety of the whole, when he learns the principle on which the ſtrength of a rope depends.

19 Mode of eſtimating the ſtrength of ropes.

We have already ſaid, that a rope-yarn ſhould be twiſted till a fibre will break rather than be pulled out from among the reſt, and that all twiſting beyond this is injurious to the ſtrength of the yarn: And we advanced this maxim upon this plain conſideration, that it is needleſs to bind them cloſer together, for they will already break rather than come out; and becauſe this cloſer binding is produced only by forcibly wrapping the outer fibres round the inner, and drawing the outer ones tight. Thus theſe fibres are on the ſtretch, and are ſtrained as if a weight were hung on each of them. The proceſs of laying lines, of a permanent twiſt, ſhows that we muſt do a little more. We muſt give the yarn a degree of elaſtic contractility, which will make it lay itſelf and form a line or cord which will retain its twiſt. This muſt leave the fibres of the yarns in a ſtate of greater compreſſion than is neceſſary for juſt keeping them together. But more than this ſeems to be needleſs and hurtful. The ſame maxim muſt direct us in forming a rope conſiſting of ſtrands, containing more than one yarn. A needleſs exceſs of twiſt leaves them ſtrained, and leſs able to perform their office in the rope.

It not unfrequently happens, that the workman, in order to make his rope ſolid and firm, hardens up the

the ſtrands till they really break: and we believe that, in the general practice of making large hawſers, many of the outer yarns in the ſtrands, eſpecially thoſe which chance to be outermoſt in the laid rope, and are therefore moſt ſtrained, are broken during the operation.

But there is another conſideration which ſhould alſo make us give no greater twiſt in any part of the operation than is abſolutely neceſſary for the firm coheſion of the parts, and this independent of the ſtrain to which the fibres or yarns are ſubjected. Twiſting cauſes all the fibres to lie obliquely with reſpect to the axis or general direction of the rope. It may juſt happen that one fibre or one yarn ſhall keep in the axis, and remain ſtraight; all the reſt muſt be oblique, and the more oblique as they are farther from the axis, and as they are more twiſted. Now it is to be demonſtrated, that when any ſtrain is given to the rope in the direction of its length, a ſtrain greater than this is actually excited on the oblique fibres, and ſo much the greater as they are more oblique; and thus the fibres which are already the weakeſt are expoſed to the greateſt ſtrains.

Let CF (fig. 13.) repreſent a fibre hanging from a hook, and loaded with a weight F, which it is juſt able to bear, but not more. This weight may repreſent the abſolute force of the fibre. Let ſuch another fibre be laid over the two pulleys A, B (fig. 14.), which are in a horizontal line AB, and let weights F and *f*, equal to the former, be hung on the ends of this fibre, while another weight R, leſs than the ſum of F and *f*, is hung on the middle point C by a hook or thread. This weight will draw down the fibre into ſuch a poſition ACB, that the three weights F, R, and *f*, are in equilibrio by the intervention of the fibre. We affirm that this weight R is the meaſure of the relative ſtrength of the fibre in relation to the form ACB; for the fibre is equally ſtretched in all its parts, and therefore in every part it is ſtrained by the force F. If therefore the weights F and *f* are held faſt, and any addition is made to the weight R, the fibre muſt break, being already ſtrained to its full ſtrength; therefore R meaſures its ſtrength in relation to its ſituation. Complete the parallelogram ACBD, and draw the diagonal CD; becauſe AB is horizontal, and AC=BC, DC is vertical, and coincides with the direction CR, by which the weight R acts. The point C is drawn by three forces, which are in equilibrio. They are therefore proportional to the ſides of a triangle, which have the ſame directions; or, the force acting in the direction CA is to that acting in the direction CR as CA to CD. The point R is ſupported by the two forces CA, CB, which are equivalent to CD; and therefore the weight F is to the weight R as CA is to CD. Therefore the abſolute ſtrengths of the two fibres AC, BC, taken ſeparately, are greater than their united ſtrengths in relation to their poſition with reſpect to CR: and ſince this proportion remains the ſame, whatever equal weights are hung on at F and *f*, it follows, that when any ſtrain DC is made to act on this fibre in the direction DC, it excites a greater ſtrain on the fibre, becauſe CA and CB taken together are greater than CD. Each fibre ſuſtains a ſtrain greater than the half of CD.

Now let the weight R be turned round the axis CR. This will cauſe the two parts of the fibre ACB to lap round each other, and compoſe a twiſted line or cord CR, as in fig. 15. and the parallelogram ACBD will remain of the ſame form, by the yielding of the weights F and *f*, as is evident from the equilibrium of forces. The fibre will always aſſume that form which makes the ſides and diagonal in the proportion of the weights. While the fibres lap round each other, they are ſtrained to the ſame degree, that is, to the full extent of their ſtrength, and they remain in this degree of ſtrain in every part of the line or cord CR. If therefore each of the fibres has the ſtrength AB, the cord has the ſtrength DC; and if F and *f* be held faſt, the ſmalleſt addition to R will break the cord. The ſum of the abſolute ſtrength of the two fibres of which this thread is compoſed is to the ſum of their relative ſtrengths, or to the ſtrength of the thread, as AC+CB is to CD, or as AC is to EC.

If the weights F and *f* are not held faſt, but allowed to yield, a heavier weight *r* may be hung on at C without breaking the fibre; for it will draw it into another poſition A *c* B, ſuch that *r* ſhall be in equilibrio with F and *f*. Since F and *f* remain the ſame, the fibre is as much ſtrained as before. Therefore make *c a*, *c b* equal to CA and CB, and complete the parallelogram *a c b d*. *c d* will now be the meaſure of the weight *r*, becauſe it is the equivalent of *c a* and *c b*. It is evident that *c d* is greater than CD, and therefore the thread formed by the lapping of the fibre in the poſition *a c b* is ſtronger than the former, in the proportion of *c d* to CD, or *c e* to CE. The cord is therefore ſo much ſtronger as the fibres are more parallel to the axis, and it muſt be ſtrongeſt of all when they are quite parallel. Bring the pulleys A, B cloſe to each other. It is plain that if we hang on a weight R leſs than the ſum of F and *f*, it cannot take down the bight of the fibre; but if equal to them, although it cannot pull it down, it will keep it down. In this caſe, when the fibres are parallel to each other, the ſtrength of the cord (improperly ſo called) is equal to the united abſolute ſtrengths of the fibres.

It is eaſy to ſee that the length of each of the fibres which compoſe any part CR of this cord is to the length of the part of the cord as AC to EC; and this is the caſe even although they ſhould lap round a cylinder of any diameter. This will appear very clearly to any perſon who conſiders the thing with attention. Let *a c* (fig. 16.) be an indefinitely ſmall portion of the fibre which is lapped obliquely round the cylinder, and let HKG be a ſection perpendicular to the axis. Draw *a e* parallel to the axis, and draw *e c* to the centre of the circle HKG, and *a e'* parallel to *e c*. It is plain that *e'c* is the length of the axis correſponding to the ſmall portion *a c*, and that *e'c* is equal to *a e*.

Hence we derive another manner of expreſſing the ratio of the abſolute and relative ſtrength; and we may ſay that the abſolute ſtrength of a fibre, which has the ſame obliquity throughout, is to its relative ſtrength as the length of the fibre to the length of the cord of which it makes a part. And we may ſay, that the ſtrength of a rope is to the united abſolute ſtrength of its yarns as the length of the cord to the length of the yarns; for although the yarns are in various ſtates of obliquity, they contribute to the ſtrength of the cord in as much as they contribute immediately to the ſtrength of the ſtrands. The ſtrength of the yarns is to that of the ſtrands as the length of the yarns to that of the ſtrands,

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ſtrands, and the ſtrength of the ſtrands is to that of the rope as the length of the firſt to that of the laſt.

And thus we ſee that twiſting the fibres diminiſhes the ſtrength of the aſſemblage; becauſe their obliquity, which is its neceſſary conſequence, enables any external force to excite a greater ſtrain on the fibres than it could have excited had they remained parallel; and ſince a greater degree of twiſting neceſſarily produces a greater obliquity of the fibres, it muſt more remarkably diminiſh the ſtrength of the cord. Moreover, ſince the greater obliquity cannot be produced without a greater ſtrain in the operation of twiſting, it follows, that immoderate twiſting is doubly prejudicial to the ſtrength of cordage.

21 Theoretical deductions confirmed by Reaumur's experiments.

Theſe theoretical deductions are abundantly confirmed by experiment; and as many perſons give their aſſent more readily to a general propoſition when preſented as an induction from unexceptionable particulars, than when offered as the conſequence of uncontroverted principles, we ſhall mention ſome of the experiments which have been made on this ſubject. Mr Reaumur, one of the moſt zealous, and at the ſame time judicious, obſervers of nature made the following experiments. (*Mem. Acad. Paris*, 1711.)

1. A thread, conſiſting of 832 fibres of ſilk, each of which carried at a medium 1 dram and 18 grains, would hardly ſupport $5\frac{1}{2}$ pounds, and ſometimes broke with 5 pounds. The ſum of the abſolute ſtrengths of the fibres is 1040 drams, or upwards of 8 pounds 2 ounces

2. A ſkain of white thread was examined in many places. Every part of it bore $9\frac{1}{2}$ pounds, but none of it would bear 10. When twiſted ſlack into a cord of 2 yarns it broke with 16 pounds.

3. Three threads were twiſted together. Their mean ſtrength was very nearly 8 pounds. It broke with $17\frac{1}{2}$, whereas it ſhould have carried 24.

4. Four threads were twiſted. Their mean ſtrength was $7\frac{1}{2}$. It broke with $21\frac{1}{2}$ inſtead of 32. Four threads, whoſe ſtrength was nearly 9 pounds, broke with 22 inſtead of 36.

5. A ſmall and very well made hempen cord broke in different places with 58, 63, 67, 72 pounds. Another part of it was untwiſted into its three ſtrands. One of them bore $29\frac{1}{2}$, another $33\frac{1}{2}$, and the third 35; therefore the ſum of their abſolute ſtrengths was 98. In another part which broke with 72, the ſtrands which had already borne this ſtrain were ſeparated. They bore 26, 28, and 30; the ſum of which is 84.

22 And by those of Sir C. Knowles.

The late admiral Sir Charles Knowles made many experiments on cordage of ſize. A piece of rope $3\frac{1}{2}$ inches in circumference was cut into many portions. Each of theſe had a fathom cut off, and it was carefully opened out. It was white, or untarred, and containd 72 yarns. They were each tried ſeparately, and their mean ſtrength was 90 pounds. Each correſponding piece of rope was tried apart, and the mean ſtrength of the nine pieces was 4552 pounds. But 90 times 72 is 6480.

23 Further remarks on twiſting.

Nothing is more familiarly known to a ſeaman than the ſuperior ſtrength of rope-yarns made up into a ſkain without twiſting. They call ſuch a piece of rope a SALVAGE. It is uſed on board the king's ſhips for rolling tackles, ſlinging the great guns, butt-ſlings, nippers for holding the viol on the cable, and in every ſervice where the utmoſt ſtrength and great plianey are wanted.

It is therefore ſufficiently eſtabliſhed, both by theory and obſervation, that the twiſting of cordage diminiſhes its ſtrength. Experiments cannot be made with ſufficient preciſion for determining whether this diminution is in the very proportion, relative to the obliquity of the fibres, which theory points out. In a hawſer the yarns lie in a great variety of angles with the axis. The very outermoſt yarn of a ſtrand is not much inclined to the axis of the rope: for the inclination of this yarn to the axis of its own ſtrand nearly compenſates for the inclination of the ſtrand. But then the oppoſite yarn of the ſame ſtrand, the yarn that is next the axis of the rope lies with an obliquity, which is the ſum of the obliquities of the ſtrand and of the yarn. So that all the yarns which are really in the axis of the rope are exceedingly oblique, and, in general, the inſide of the rope has its yarns more oblique than the outſide. But in a laid rope we ſhould not conſider the ſtrength as made up of the ſtrengths of the yarns; it is made up of the ſtrengths of the ſtrands: For when the rope is violently ſtretched, it untwiſts as a rope, and the ſtrands are a little more twiſted; ſo that they are reſiſting as ſtrands, and not as yarns. Indeed, when we conſider the proceſs of laying the rope, we ſee that it muſt be ſo. We know, from what has been already ſaid, that the three ſtrands would carry more when parallel than when twiſted into a rope, although the yarns would then be much more oblique to the axis. The chief attention therefore ſhould be turned to the making the moſt perfect ſtrands.

We are fully authoriſed to ſay that the twiſt given to cordage ſhould be as moderate as poſſible. We are certain that it diminiſhes the ſtrength; and that the appearance of ſtrength which its ſuperior ſmoothneſs and hardneſs gives is fallacious. But a certain degree of this is neceſſary for its duration. If the rope is laid too ſlack, its parts are apt to open when it happens to be catched in ſhort loops at its going into a pulley, &c. in which caſe ſome of the ſtrands or yarns are apt to kink and break. It alſo becomes too pervious to water, which ſoaks and rots it. To prevent theſe and other ſuch inconveniences, a conſiderable degree of firmneſs or hardneſs is neceſſary; and in order to give the cordage this appearance of ſuperior ſtrength, the manufacturer is diſpoſed to exceed.

24 Experiments of Du Hamel to aſcertain the beſt degree of twiſt, &c.

Mr Du Hamel made many experiments in the royal dock-yards in France, with a view to aſcertain what is the beſt degree of twiſt. It is uſual to work up the yarns to $\frac{2}{3}$ of their length. Mr Du Hamel thought this too much, and procured ſome to be worked up only to $\frac{3}{4}$ of the length of the yarns. The ſtrength of the firſt, by a mean of three experiments, was 4321, and that of the laſt was 5187.

He cauſed three ropes to be made from the ſame hemp, ſpun with all poſſible equability, and in ſuch proportion of yarn that a fathom of each was of the ſame weight. The rope which was worked up to $\frac{2}{3}$ bore 4098 pounds; that which was worked up to $\frac{3}{4}$ bore 4850; and the one worked up to $\frac{4}{5}$ bore 6205. In another trial the ſtrengths were 4250, 6753, and 7397. Theſe ropes were of different ſizes.

He had influence enough, in conſequence of theſe experiments, to get a conſiderable quantity of rigging made

made of yarns worked up only to $\frac{1}{4}$ of their length, and had them used during a whole campaign. The officers of the ships reported that this cordage was about $\frac{1}{4}$ lighter than the ordinary kind; nearly $\frac{1}{8}$ slenderer, so as to give less hold to the wind, was therefore more supple and pliant, and run easier through the blocks, and did not run into kinks; that it required fewer hands to work it, in the proportion of two to three; and that it was at least $\frac{1}{4}$ stronger. And they said that it did not appear to have suffered more by using than the ordinary cordage, and was fit for another campaign.

Mr Du Hamel also made experiments on other fabrics of cordage, which made all twisting unnecessary, such as simply laying the yarn in skains, and then covering it with a worming of small line. This he found greatly superior in strength, but it had no duration, because the covering opened in every short bending, and was soon fretted off. He also covered them with a woven coat in the manner practised for house-furniture. But this could not be put on with sufficient tightness, without an enormous expence, after the manner of a horse-whip. Small ropes were woven solid, and were prodigiously strong. But all these fabrics were found too soft and pervious to water, and were soon rendered unserviceable. The ordinary process of rope-making therefore must be adhered to; and we must endeavour to improve it by diminishing the twist as far as is compatible with the necessary solidity.

In pursuance of this principle, it is surely advisable to lay slack all such cordage as is used for standing rigging, and is never exposed to short bendings. Shrouds, stays, backstays, pendants, are in this situation, and can easily be defended from the water by tarring, serving, &c.

The same principle also directs us to make such cordage of four strands. When the strands are equally hardened, and when the degree of twist given in the laying is precisely that which is correspondent to the twist of the strands, it is demonstrable that the strands are lying less obliquely to the axis in the four-strand cordage, and should therefore exert greater force. And experience fully confirms this. Mr Du Hamel caused two very small hawsers to be made, in which the strands were equally hardened. One of them had three strands, and the other six with a heart. They were worked up to the same degree. The first broke with 865 pounds, and the other with 1325. Several comparisons were made, with the same precautions, between cordage of three and of four strands, and in them all the four-strand cordage was found greatly superior; and it appeared that a heart judiciously put in not only made the work easier and more perfect to the eye, but also increased the strength of the cordage.

It is surely unreasonable to refuse credit to such a uniform course of experiment, in which there is no motive for imposition, and which is agreeable to every clear notion that we can form on this complicated subject; and it argues a considerable presumption in the professional artists to oppose the vague notions which they have of the matter to the calm reflections, and minute examination of every particular, by a man of good understanding, who had no interest in misleading them.

The same principles will explain the superiority of cable-laid cordage. The general aim in rope-making is to make every yarn bear an equal share of the general strain, and to put every yarn in a condition to bear it. But if this cannot be done, the next thing aimed at is, to put the yarns in such situations that the strains to which they are exposed in the use of the rope may be proportioned to their ability to bear it. Even this point cannot be attained, and we must content ourselves with an approach towards it.

Rope-making.

25 Superiority of cable-laid cordage, &c.

The greatest difficulty is to place the yarns of a large strand agreeably to those maxims. Supposing them placed with perfect regularity round the yarn which is in the middle: they will lie in the circumferences of concentric circles. When this whole mass is turned equally round this yarn as an axis, it is plain that they will all keep their places, and that the middle yarn is simply twisted round its axis, while those of the surrounding circles are lapped round it in spirals, and that these spirals are so much more oblique as the yarns are farther from the axis. Suppose the sledge kept fast, so that the strand is not allowed to shorten. The yarns must all be stretched, and therefore strained; and those must be the most extended which are the farthest from the middle yarn. Now allow the sledge to approach. The strand contracts in its general length, and those yarns contract most which were most extended. The remaining extension is therefore diminished in all; but still those which are most remote from the middle are most extended, and therefore most strained, and have the smallest remainder of their absolute force. Unfortunately they are put into the most unfavourable situations, and those which are already most strained are left the most oblique, and have the greatest strain laid on them by any external force. But this is unavoidable: Their greatest hurt is the strains they sustain in the manufacture. When the strand is very large, as in a nine-inch hawser, it is almost impossible to bring the whole to a proper firmness for laying without straining the outer yarns to the utmost, and many of them are broken in the operation.

26 In laying large ropes the strands are twisted in a direction opposite to that [illegible] and are [illegible]

The reader will remember that a two-strand line was laid or closed merely by allowing it to twist itself up at the swivel of the loper; and that it was the elasticity arising from the twist of the yarn which produced this effect: and he would probably be surprised when we [illegible] said, that, in laying a larger rope, the strands are twisted in a direction opposite to that of the spirals [illegible] Since the tendency to close into a rope is nothing but the tendency of the strands to untwist, it would seem natural to twist the strands as the yarns were twisted before. This would be true, if the elasticity of the fibres in a yarn produced the same tendency to untwist in the strand that it does in the yarn. But this is not the case. The contraction of one of the outer yarns of a strand tends to pull the strand backward round the axis of the strand: but the contraction of a fibre of this yarn tends to turn the yarn round its own axis, and not round the axis of the strand. It tends to untwist the yarn, but not to untwist the strand. It tends to untwist the strand only so far as it tends to contract the yarn. Let us suppose the yarn to be spun up to one-half the length of the fibres. The contracting power of this yarn will be only one-half of the force exerted by the fibres: therefore, whatever is the force necessary for closing the rope properly, the fibres of the

Rope-making.

the yarns muſt be exerting twice this force. Now let the ſame yarn, ſpun up to one half, be made up in a ſtrand, and let the ſtrand be twiſted in the oppoſite direction to the ſpinning till it has acquired the ſame elaſticity fit for laying. The yarns are untwiſted. Suppoſe to three-fourths of the length of the fibres. They are now exerting only four-thirds of the force neceſſary for laying, that is, two-thirds of what they were obliged to exert in the other caſe; and thus we have ſtronger yarns when the ſtrands are equally ſtrained. But they require to be more ſtrained than the other; which, being made of more twiſted yarn, ſooner acquire the elaſticity fit for laying. But ſince the elaſticity which fits the ſtrand for laying does not increaſe ſo faſt as the ſtrain on the fibres of the yarn which produces it, it is plain, that when each has acquired that elaſticity which is proper for laying, the ſtrands made of the ſlack-twiſted yarn are the ſtrongeſt; and the yarns are alſo the ſtrongeſt; and being ſofter, the rope will cloſe better.

Experience confirms all this; and cordage, whoſe ſtrands are twiſted in the oppoſite direction to the twiſt of ſpinning, are found to be ſtronger than the others in a proportion not leſs than that of 7 to 6.

27 Great cordage made by laying it twice.

Such being the difficulty of making a large ſtrand, and its defects when made, we have fallen on a method of making great cordage by laying it twice. A hawſer-laid rope, ſlack ſpun, little hardened in the ſtrands, and ſlack laid, is made a ſtrand of a large rope called a *cable* or *cablet*. The advantages of this fabric are evident. The ſtrands are reduced to one-third or one-fourth of the diameter which they would have in a hawſer of the ſame ſize. Such ſtrands cannot have their yarns lying very obliquely, and the outer yarns cannot be much more ſtrained than the inner ones. There muſt therefore be a much greater equality in the whole ſubſtance of cable-laid cordage, and from this we ſhould expect ſuperior ſtrength.

Accordingly, their ſuperiority is great, not leſs than in the proportion of 13 to 9, which is not far from the proportion of 4 to 3. A cable is more than a fourth part, but is not a third part, ſtronger than a hawſer of the ſame ſize or weight.

They are ſeldom made of more than three hawſers of three ſtrands each, though they are ſometimes made of three four-ſtranded hawſers, or of four three-ſtranded. The firſt of theſe two is preferred, becauſe four ſmall ſtrands can be laid very cloſe; whereas it is difficult to lay well four hawſers, already become very hard.

The ſuperiority of a cable-laid cordage being attributed entirely to the greater perfection of the ſtrands, and this ſeeming to ariſe entirely from their ſmallneſs, it was natural to expect ſtill better cordage by laying cables as the ſtrands of ſtill larger pieces. It has been tried, and with every requiſite attention. But although they have always equalled, they have not decidedly excelled, common cables of the ſame weight; and they require a great deal more work. We ſhall not therefore enter upon the manipulations of this fabric.

There is only one point of the mechanical proceſs of rope-making which we have not conſidered minutely; and it is an important one, viz. the diſtribution of the total ſhortening of the yarns between the hardening of the ſtrands and the laying the rope. This is a point about which the artiſts are by no means agreed. There is certainly a poſition of the ſtrands of a laid rope which puts every part in equilibrio; and this is what an elaſtic, but perfectly ſoft rope (were ſuch a thing poſſible), would aſſume. But this cannot be diſcovered by any experiments made on large or even on firm cordage; and it may not be thought ſufficiently clear that the proportion which would be diſcovered by the careful fabrication of a very ſmall and ſoft line is the ſame that will ſuit a cordage of any diameter. We muſt proceed much on conjecture; and we cannot ſay that the arguments uſed by the partiſans of different proportions are very convincing.

28 Diſtribution of the total ſhortening of the yarns between the hardening of the ſtrands and laying the rope.

The general practice, we believe, is to divide the whole of the intended ſhortening of the yarns, or the working up into three parts, and to employ two of theſe in hardening the ſtrands, and the remaining third in cloſing the hawſer.

29 Opinion and experiments of Du Hamel.

Mr Du Hamel thinks, that this repartition is injudicious, and that the yarns are too much ſtrained, and the ſtrands rendered weak. He recommends to invert this proportion, and to ſhorten one-third in the hardening of the ſtrands, and two-thirds in laying the hawſer. But if the ſtrain of the yarns only is conſidered, one ſhould think that the outſide yarn of a ſtrand will be more ſtrained in laying, in proportion to the yarn of the ſame ſtrand, that is, in the very axis of the rope. We can only ſay, that if a very ſoft line is formed in this way, it will not keep its twiſt. This ſhows that the turns in laying were more than what the elaſticity or hardening of the ſtrands required. The experiments made on ſoft lines always ſhowed a tendency to take a greater twiſt when the lines were made in the firſt manner, and a tendency to loſe their twiſt when made in Mr Du Hamel's manner. We imagine that the true proportion is between theſe two extremes, and that we ſhall not err greatly if we halve the total ſhortening between the two parts of the proceſs. If working up to two-thirds be inſiſted upon, and if it be really too much, Mr Du Hamel's repartition may be better, becauſe part of this working will quickly go off when the cordage is uſed. But it is ſurely better to be right in the main point, the total working up, and then to adjuſt the diſtribution of it ſo that the finiſhed cordage ſhall preciſely keep the form we have given to it.

There muſt be the ſame uncertainty in the quadruple diſtribution of the working up a cable. When a cable has its yarns ſhortened to two-thirds, we believe the ordinary practice has been, 1ſt, To warp 180 fathoms; 2d, To harden up the ſtrands 30 fathoms; 3d, To lay or cloſe up 13 fathoms; 4th, To work up the hawſers nine fathoms; 5th, To cloſe up eight fathoms. This leaves a cable of 120. Since Mr Du Hamel's experiments have had an influence at Rochefort, the practice has been to warp 190, to harden up 38, to lay up 12, to work up the hawſers 10, and then to cloſe up ſix; and when the cable is finiſhed, to ſhorten it two fathoms more, which our workmen call *throwing the turn well up*. This leaves a cable of 122 fathoms.

As there ſeems little doubt of the ſuperiority of cordage ſhortened one-fourth over cordage ſhortened one-third, the following diſtribution may be adopted: warp

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 7.

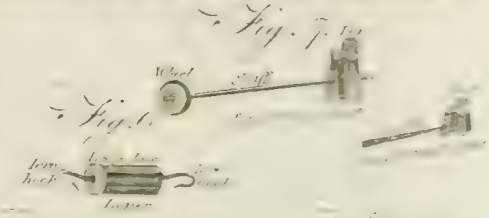

Fig. 6.

Fig. 14.

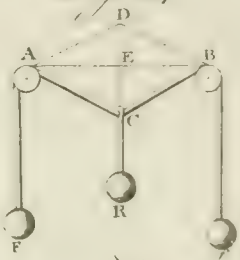

Fig. 13.

Fig. 11.

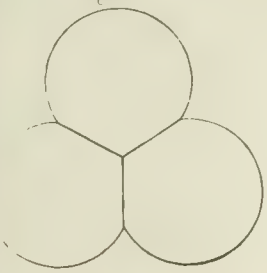

Fig. 12.

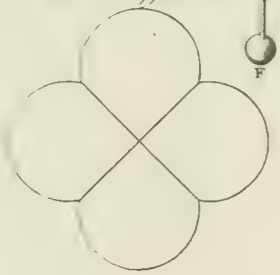

Fig. 10.

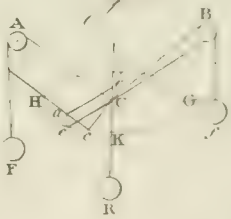

Fig. 8.

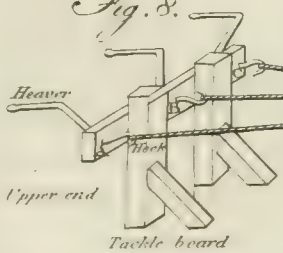

Fig. 10.

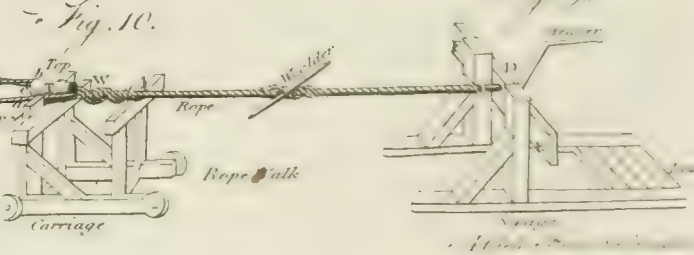

Fig. 9.

190 fathoms, harden up 12, lay up 11, work up the hawsers 12, and close up 12 more, which will leave a cable of 143.

There is another question about which the artists are divided in their opinions, viz. the strains made use of during the operation. This is produced by the weight laid on the sledge. If this be too small, the strands will not be sufficiently tightened, and will run into kinks. The sledge will come up by starts; and a small inequality of twist in the strands will throw it askew. The top will not run well without a considerable pressure to throw it from the closing point, and therefore the cordage will neither close fairly nor firmly; on the other hand, it is evident, that the strain on the strands is a complete expenditure of so much of their force, and it may be so great as to break them. These are the extreme positions. And we think that it may be fairly deduced from our principles, that as great a strain should be laid on the strands as will make good work, that is, as will enable the rope to close nearly and completely, but no more. But can any general rule be given for this purpose?

The practice at Rochefort was to load the sledge till its weight and load were double the weight of the yarns when warped 180 fathoms. A six-inch hawser will require about a ton. If we suppose the friction one-third of the weight; the strain on each strand will be about two hundred and a quarter weight. Mr Du Hamel thinks this too great a load, and proposes to put only five-fourths or three-seconds of the weight of the cordage; and still less if a shorter piece be warped, because it does not require so much force to throw the twist from the two cranks to the middle of the strand. We shall only say, that stronger ropes are made by heavy loading the carriage, and working up moderately, than by greater shortening, and a lighter load; but all this is very vague.

31 Rules for computing the strength of cordage.

The reader will naturally ask, after this account of the manufacture, what is the general rule for computing the strength of cordage? It cannot be expected to be very precise. But if ropes are made in a manner perfectly similar, we should expect the strength to be in proportion to the area of their section; that is, to the square of their diameters or circumferences, or to the number of equal threads contained in them.

Nor does it deviate far from this rule; yet Mr Du Hamel shows, from a range of experiments made on all cordage of $3\frac{1}{3}$ inch circumference and under, that the strength increases a little faster than the number of equal threads. Thus he found that ropes of

9 threads bore	1014 pounds, instead of	946
12	1564	1262
18	2148	1893

We cannot pretend to account for this. We must also observe, that the strength of cordage is greatly improved by making them of yarn spun fine. This requires finely dressed hemp; and being more supple, the fibres lie close, and do not form such oblique spirals. But all hemp will not spin equally fine. Every stalk seems to consist of a certain number of principal fibres, which split more easily into a second set, and these more difficultly into a third set, and so on. The ultimate fineness, therefore, which a reasonable degree of dressing can give to hemp, bears some proportion, not indeed very precise, to the size of the stalk. The British and Dutch use the best hemp, spin their yarn the finest, and their cordage is considerably stronger than the French, much of which is made of their own hemp, and others of a coarse and harsh quality. Rope-making

The following rule for judging of the weight which a rope will bear is not far from the truth. It supposes them rather too strong; but it is so easily remembered that it may be of use.

Multiply the circumference in inches by itself, and take the fifth part of the product, it will express the tons which the rope will carry. Thus, if the rope have 6 inches circumference, 6 times 6 is 36, the fifth of which is $7\frac{1}{5}$ tons; apply this to the rope of $3\frac{1}{3}$, on which Sir Charles Knowles made the experiments formerly mentioned, $3\frac{1}{3} \times 3\frac{1}{3} = 10,25$, $\frac{1}{5}$ of which is 2,05 tons, or 4592 pounds. It broke with 4550.

32 Of tarring, and its effects on the strength of ropes.

This may suffice for an account of the mechanical part of the manufacture. But we have taken no notice of the operation of tarring; and our reason was, that the methods practised in different rope-works are so exceedingly different, that we could hardly enumerate them, or even give a general account of them. It is evidently proper to tar in the state of twine or yarn, this being the only way that the hemp could be uniformly penetrated. The yarn is made to wind off one reel, and having passed through a vessel containing hot tar, it is wound up on another reel; and the superfluous tar is taken off by passing through a hole surrounded with spongy oakum; or it is tarred in skains or hauls, which are drawn by a capstern through the tar-kettle, and through a hole formed of two plates of metal, held together by a lever loaded with a weight.

It is established beyond a doubt, that tarred cordage when new is weaker than white, and that the difference increases by keeping. The following experiments were made by Mr Du Hamel at Rochefort on cordage of three inches (French) in circumference, made of the best Riga hemp.

	White.	*Tarred.*
	August 8. 1741.	
Broke with	4500 pounds.	3400 pounds.
	4900	3300
	4800	3250
	April 25. 1743.	
	4600	3500
	5000	3400
	5000	3400
	September 3. 1746.	
	3800	3000
	4000	2700
	4200	2800

A parcel of white and tarred cordage was taken out of a quantity which had been made February 12. 1746. It was laid up in the magazines, and comparisons were made from time to time as follows:

	White bore.	*Tarred bore.*	*Differ.*
1746 April 14.	2645 pounds.	2312 pounds.	333
1747 May 18.	2702	2155	607
1747 Oct. 21.	2710	2050	660
1748 June 19.	2575	1752	823
1748 Oct. 2.	2425	1837	588
1749 Sep. 25.	2917	1865	1052

Mr

Rope-making.

Mr Du Hamel ſays, that it is decided by experience, 1. That white cordage in continual ſervice is one-third more durable than tarred. 2. That it retains its force much longer while kept in ſtore. 3. That it reſiſts the ordinary injuries of the weather one-fourth longer.

We know this one remarkable fact. In 1758 the ſhrowds and ſtays of the Sheer hulk at Portſmouth dockyard were overhawled, and when the worming and ſervice were taken off, they were found to be of white cordage. On examining the ſtorekeeper's books, they were found to have been formerly the ſhrowds and rigging of the Royal William, of 110 guns, built in 1715, and rigged in 1716. She was thought top-heavy and unfit for ſea, and unrigged and her ſtores laid up. Some few years afterwards, her ſhrowds and ſtays were fitted on the Sheer hulk, where they remained in conſtant and very hard ſervice for about 30 years, while every tarred rope about her had been repeatedly renewed. This information we received from Mr Brown, boatſwain of the Royal William during the war 1758, &c.

Why then do we tar cordage? We thus render it more unpliant, weaker, and leſs durable. It is chiefly ſerviceable for cables and ground tackle, which muſt be continually wetted and even ſoaked. The reſult of careful obſervation is, 1. That white cordage, expoſed to be alternately very wet and dry, is weaker than tarred cordage. 2. That cordage which is ſuperficially tarred is conſtantly ſtronger than what is tarred throughout, and it reſiſts better the alternatives of wet and dry. *N. B.* The ſhrouds of the Sheer hulk were well tarred and blacked, ſo that it was not known that they were of white cordage.

Tar is a curious ſubſtance, miſcible completely with water. Attempts were made to anoint cordage with oils and fats which do not mix with water. This was expected to defend them from its pernicious effects. But it was diſtinctly found that theſe matters made the fibres of hemp glide ſo eaſily on each other, that it was hardly poſſible to twiſt them permanently. Before they graſped each other ſo hard that they could not be drawn, they were ſtrained almoſt to breaking.

53 Effect of tanning.

Attempts have been made to increaſe the ſtrength of cordage by tanning. But although it remains a conſtant practice in the manufacture of nets, it does not appear that much addition, either of ſtrength or durability, can be given to cordage by this means. The trial has been made with great care, and by perſons fully able to conduct the proceſs with propriety. But it is found that the yarns take ſo long time in drying, and are ſo much hurt by drying ſlowly, that the room required for a conſiderable rope-work would be immenſe; and the improvement of the cordage is but trifling, and even equivocal. Indeed tanning is a chemical proceſs, and its effect depends entirely on the nature of the materials to which the tan is applied. It unqueſtionably condenſes, and even ſtrengthens, the fibre of leather: but for any thing that we know *à priori*, it may deſtroy the coheſion of hemp and flax; and experiment alone could decide the queſtion. The reſult has been unfavourable; but it does not follow from this that a tan cannot be found which ſhall produce on the texture of vegetables effects ſimilar to what oak-bark and other aſtringents produce on the animal fibre or membrane. It is well known that ſome dyes increaſe the ſtrength of flax and cotton, notwithſtanding the corroſion which we know to be produced by ſome of the ingredients. This is a ſubject highly worth the attention of the chemiſt and the patriot.

Rope-Dancer || Roſe.

Rope-Dancer. See *Rope-Dancer.*

Rope-Yarn, among ſailors, is the yarn of any rope untwiſted, but commonly made up of junk; its uſe is to make ſinnet, matts, &c.

ROQUET. See Rocket.

RORIDULA, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants. The corolla is pentapetalous; the calyx pentaphyllous; the capſule trivalved; the antheræ ſcrotiform at the baſe.

ROSA, the Rose: A genus of the polygamia order, belonging to the icoſandria claſs of plants; and in the natural method ranking under the 35th order, *Senticoſæ*. There are five petals; the calyx is urceolated, quinqueſid, cornous, and ſtraitened at the neck. The ſeeds are numerous, hiſpid, and affixed to the inſide of the calyx.

The ſorts of roſes are very numerous; and the botaniſts find it very difficult to determine with accuracy which are ſpecies and which are varieties, as well as which are varieties of the reſpective ſpecies. On this account Linnæus, and ſome other eminent authors, are inclined to think that there is only one real ſpecies of roſe, which is the *roſa canina*, or "dog-roſe of the hedges," &c. and that all the other ſorts are accidental varieties of it. However, according to the preſent Linnæan arrangement, they ſtand divided into 14 ſuppoſed ſpecies, each comprehending varieties, which in ſome ſorts are but few, in others numerous.

The ſuppoſed ſpecies and their varieties, according to the arrangement of modern botaniſts, are as follow:

1. The canina, canine roſe, wild dog-roſe of the hedges, or hep-tree, grows five or ſix feet high, having prickly-ſtalks and branches, pinnated, five or ſeven-lobed leaves, with aculeated foot-ſtalks, ſmooth pedunculi, oval ſmooth germina, and ſmall ſingle flowers. There are two varieties, red-flowered and white-flowered. They grow wild in hedges abundantly all over the kingdom; and are ſometimes admitted into gardens, a few to increaſe the variety of the ſhrubbery collection.

2. The alba, or common white-roſe, grows five or ſix feet high, having a green ſtem and branches, armed with prickles, hiſpid pedunculi, oval ſmooth germina, and large white flowers. The varieties are,—large double white roſe—dwarf ſingle white roſe—maidens-bluſh white roſe, being large, produced in cluſters, and of a white and bluſh-red colour.

3. The Gallica, or Gallican roſe, &c. grows from about three or four to eight or ten feet high, in different varieties; with pinnated, three, five, or ſeven-lobed leaves, and large red and other coloured flowers in different ſorts. This ſpecies is very extenſive in ſuppoſed varieties, bearing the above ſpecific diſtinction, ſeveral of which have been formerly conſidered as diſtinct ſpecies, but are now ranged among the varieties of the Gallican roſe, conſiſting of the following noted varieties.

Common red officinal roſe, grows erect, about three or four feet high, having ſmall branches, with but few prickles, and large ſpreading half-double deep-red flowers.

flowers.—Rosa mundi (rose of the world) or striped red rose, is a variety of the common red rose, growing but three or four feet high, having large spreading semi-double red flowers, beautifully striped with white—and deep red.—York and Lancaster variegated rose, grows five, six, or eight feet high, or more; bearing variegated red flowers, consisting of a mixture of red and white; also frequently disposed in elegant stripes, sometimes in half of the flower, and sometimes in some of the petals.—Monthly rose, grows about four or five feet high, with green very prickly shoots; producing middle-sized, moderately-double, delicate flowers, of different colours in the varieties. The varieties are, common red-flowered monthly rose—blush-flowered—white-flowered—striped-flowered. All of which blow both early and late, and often produce flowers several months in the year, as May, June, and July; and frequently again in August or September, and sometimes, in fine mild seasons, continues till November or December: hence the name *monthly rose*.—Double virgin-rose, grows five or six feet high, having greenish branches with scarce any spines; and with large double pale-red and very fragrant flowers.—Red damask rose, grows eight or ten feet high, having greenish branches, armed with short aculea; and moderately-double, fine soft-red, very fragrant flowers.—White damask rose, grows eight or ten feet high, with greenish very prickly branches, and whitish-red flowers, becoming gradually of a whiter colour.—Blush Belgic rose, grows three or four feet high, or more; having greenish prickly branches, five or seven lobed leaves, and numerous, very double, blush-red flowers, with short petals, evenly arranged.—Red Belgic rose, having greenish and red shoots and leaves, and fine double deep-red flowers.—Velvet rose, grows three or four feet high, armed with but few prickles; producing large velvet-red flowers, comprising semi-double and double varieties, all very beautiful roses.—Marbled rose, grows four or five feet high, having brownish branches, with but few prickles; and large, double, finely-marbled, red flowers.—Red-and-yellow Austrian rose, grows five or six feet high, having slender reddish-branches, armed with short brownish aculea; and with flowers of a reddish copper colour on one side, the other side yellow. This is a curious variety, and the flowers assume a singularly agreeable appearance.—Yellow Austrian rose, grows five or six feet high, having reddish very prickly shoots; and numerous bright-yellow flowers.—Double yellow rose, grows six or seven feet high; with brownish branches, armed with numerous large and small yellowish prickles; and large very double yellow flowers.—Frankfort rose, grows eight or ten feet high, is a vigorous shooter, with brownish branches thinly armed with strong prickles; and produces largish double purplish-red flowers, that blow irregularly, and have but little fragrance.

4. The centifolia, or hundred-leaved red rose, &c. grows from about three or four to six or eight feet high, in different sorts, all of them hispid and prickly; pinnated three and five lobed leaves; and large very double red flowers, having very numerous petals, and of different shades in the varieties. The varieties are,—common Dutch hundred-leaved rose, grows three or four feet high, with erect greenish branches, but moderately armed with prickles; and large remarkably double red flowers, with short regularly arranged petals.—Blush hundred leaved rose, grows, like the other, with large very double pale-red flowers.—Provence rose, grows five or six feet, with greenish-brown prickly branches, and very large double globular red flowers, with large petals folding over one another, more or less in the varieties.—The varieties are, common red Provence rose, and pale Provence rose; both of which having larger and somewhat looser petals than the following sort.—Cabbage Provence rose; having the petals closely folded over one another like cabbages.—Dutch cabbage rose, very large, and cabbages tolerably.—Childing Provence rose—Great royal rose, grows six or eight feet high, producing remarkably large, somewhat loose, but very elegant flowers.—All these are large double red flowers, somewhat globular at first blowing, becoming gradually a little spreading at top, and are all very ornamental fragrant roses.—Moss Provence rose, supposed a variety of the common rose; grows erectly four or five feet high, having brownish stalks and branches, very closely armed with short prickles, and double crimson-red flowers; having the calyx and upper part of the peduncle surrounded with a rough mossy-like substance, effecting a curious singularity. This is a fine delicate rose, of a high fragrance, which, together with its mossy calyx, renders it of great estimation as a curiosity.

5. The cinnamomea, or cinnamon rose, grows five or six feet high, or more, with purplish branches thinly aculeated; pinnated five or seven lobed leaves, having almost inermous petioles, smooth pedunculi, and smooth globular germina; with small purplish-red cinnamon-scented flowers early in May. There are varieties with double flowers.

6. The Alpina, or Alpine inermous rose, grows five or six feet high, having smooth or unarmed reddish branches, pinnated seven-lobed smooth leaves, somewhat hispid pedunculi, oval germina, and deep-red single flowers; appearing in May. This species, as being free from all kind of armature common to the other sorts of roses, is esteemed as a singularity; and from this property is often called the *virgin rose*.

7. The Carolina, or Carolina and Virginia rose, &c. grows six or eight feet high, or more, having smooth reddish branches, very thinly aculeated; pinnated seven-lobed smooth leaves, with prickly foot-stalks; somewhat hispid pedunculi, globose hispid germen, and single red flowers in clusters, appearing mostly in August and September. The varieties are, dwarf Pennsylvanian rose, with single and double red flowers—American pale-red rose. This species and varieties grow naturally in different parts of North America; they effect a fine variety in our gardens, and are in estimation for their late-flowering property, as they often continue in blow from August until October; and the flowers are succeeded by numerous red berry-like heps in autumn, continuing a variety all winter.

8. The villosa, or villose apple-bearing rose, grows six or eight feet high, having [illegible] smooth branches; aculeated sparsely [illegible] lobed villose or hairy leaves, downy underneath, with prickly foot-stalks, hispid peduncles, a globular prickly germen; and large single red flowers, succeeded by large round prickly heps, as big as little apples. This species merits admittance into every collection as a curiosity for the singularity of its fruit, both for variety and

Rosa. and use; for it having a thick pulp of an agreeable acid relish, is often made into a tolerable good sweetmeat.

9. The pimpinellifolia, or burnet-leaved rose, grows about a yard high, aculeated sparsedly; small neatly pinnated seven-lobed leaves, having obtuse folioles and rough petioles, smooth peduncules, a globular smooth germen, and small single flowers. There are varieties with red flowers—and with white flowers. They grow wild in England, &c. and are cultivated in shrubberies for variety.

10. The spinosissima, or most spinous, dwarf burnet-leaved rose, commonly called *Scotch rose*, grows but two or three feet high, very closely armed with spines; small neatly pinnated seven-lobed leaves, with prickly foot-stalks, prickly pedunculi, oval smooth germen, and numerous small single flowers, succeeded by round dark-purple heps. The varieties are, common white-flowered—red-flowered—striped-flowered—marbled-flowered. They grow naturally in England, Scotland, &c. The first variety rises near a yard high, the others but one or two feet, all of which are single-flowered; but the flowers being numerous all over the branches, make a pretty appearance in the collection.

11. The eglanteria, eglantine rose, or sweet briar, grows five or six feet high, having green branches, armed with strong spines sparsedly; pinnated seven-lobed odoriferous leaves, with acute folioles and rough foot-stalks, smooth pedunculi, globular smooth germina, and small pale-red flowers. The varieties are, common single-flowered—semi-double flowered—double-flowered—blush double-flowered—yellow-flowered. This species grows naturally in some parts of England, and in Switzerland. It claims culture in every garden for the odoriferous property of its leaves; and should be planted in the borders, and other compartments contiguous to walks, or near the habitation, where the plants will impart their refreshing fragrance very profusely all around; and the young branches are excellent for improving the odour of nose-gays and bow-pots.

12. The moschata, or musk-rose, supposed to be a variety only of the ever-green musk-rose, hath weak smooth green stalks and branches, rising by support from six to eight or ten feet high or more, thinly armed with strong spines; pinnated seven-lobed smooth leaves, with prickly foot-stalks; hispid peduncles; oval hispid germen; and all the branches terminated by large umbellate clusters of pure-white musk-scented flowers in August, &c.

13. The sempervirens, or ever-green musk rose, hath a somewhat trailing stalk and branches, rising by support five or six feet high or more, having a smooth bark armed with prickles; pinnated five-lobed smooth shining evergreen leaves, with prickly petioles, hispid pedunculi, oval hispid germen; and all the branches terminated by clusters of pure-white flowers of a musky fragrance; appearing the end of July, and in August. The sempervirent property of this elegant species renders it a curiosity among the rosy tribe; it also makes a fine appearance as a flowering shrub. There is one variety, the deciduous musk-rose above-mentioned. This species and variety flower in August, and is remarkable for producing them numerously in clusters, continuing in succession till October or November.

The above 13 species of rosa, and their respective varieties, are of the shrub kind; all deciduous, except the last sort, and of hardy growth, succeeding in any common soil and situation, and flowering annually in great abundance from May till October, in different sorts; though the general flowering season for the principal part of them is June and July: but in a full collection of the different species, the blow is continued in constant succession several months, even sometimes from May till near Christmas; producing their flowers universally on the same year's shoots, rising from those the year before, generally on long pedunculi, each terminated by one or more roses, which in their characteristic state consist each of five large petals and many stamina; but in the doubles, the petals are very numerous; and in some sorts, the flowers are succeeded by fruit ripening to a red colour in autumn and winter, from the seed of which the plants may be raised: but the most certain and eligible mode of propagating most of the sorts is by suckers and layers; and by which methods they may be increased very expeditiously in great abundance.

The white and red roses are used in medicine. The former distilled with water yields a small portion of a butyraceous oil, whose flavour exactly resembles that of the roses themselves. This oil and the distilled water are very useful and agreeable cordials. These roses also, besides the cordial and aromatic virtues which reside in their volatile parts, have a mild purgative one, which remains entire in the decoction left after distillation. The red rose, on the contrary, has an astringent and gratefully corroborating virtue.

ROSA (Salvator), an admirable painter, born at Naples in 1614. He was first instructed by Francesco Francazano, a kinsman: but the death of his father reduced him to sell drawings sketched upon paper for any thing he could get; one of which happening to fall into the hands of Lanfranc, he took him under his protection, and enabled him to enter the school of Spagnoletto, and to be taught moreover by Daniel Falcone, a distinguished painter of battles at Naples. Salvator had a fertile imagination. He studied nature with attention and judgment; and always represented her to the greatest advantage: for every tree, rock, cloud, or situation, that enters into his composition, shows an elevation of thought that extorts admiration. He was equally eminent for painting battles, animals, sea or land storms; and he executed these different subjects in such taste as renders his works readily distinguishable from all others. His pieces are exceedingly scarce and valuable; one of the most capital is that representing Saul and the witch of Endor, which was preserved at Versailles. He died in 1673; and as his paintings are in few hands, he is more generally known by his prints; of which he etched a great number. He painted landscapes more than history; but his prints are chiefly historical. The capital landscape of this master at Chiswick is a noble picture. However, he is said to have been ignorant of the management of light, and to have sometimes shaded faces in a disagreeable manner. He was however a man of undoubted genius; of which he has given frequent specimens in his works. A roving disposition, to which he is said to have given full scope, seems to have added a wildness to all his thoughts. We are told that he spent the early part of his life in a troop of banditti; and that the rocky desolate scenes in

in which he was accustomed to take refuge, furnished him with those romantic ideas in landscape, of which he is so exceedingly fond, and in the description of which he so greatly excels. His *robbers*, as his detached figures are commonly called, are supposed also to have been taken from the life.

Salvator Rosa is sufficiently known as a painter; but until now we never heard of him as a musician. Among the musical manuscripts purchased at Rome by Dr Burney, was a music book of Salvator, in which are many airs and cantatas of different masters, and eight entire cantatas, written, set, and transcribed by this celebrated painter himself. From the specimen of his talents for music here given, we make no scruple of declaring, that he had a truer genius for this science, in point of melody, than any of his predecessors or cotemporaries: there is also a strength of expression in his verses, which sets him far above the middle rank as a poet. Like most other artists of real original merit, he complains of the ill usage of the world, and the difficulty he finds in procuring a bare subsistence.

ROSACEA. See *Gutta Rosacea.*

ROSACEOUS, among botanists, an appellation given to such flowers as are composed of several petals or leaves disposed in a sort of circular form, like those of a rose.

ROSAMOND, daughter of Walter Lord Clifford, was a young lady of exquisite beauty, fine accomplishments, and blessed with a most engaging wit and sweetness of temper. She had been educated, according to the custom of the times, in the nunnery of Godstow; and the popular story of her is as follows: Henry II. saw her, loved her, declared his passion, and triumphed over her honour. To avoid the jealousy of his queen Elinor, he kept her in a wonderful labyrinth at Woodstock, and by his connection with her had William Longsword earl of Salisbury, and Geoffrey bishop of Lincoln. On Henry's absence in France, however, on account of a rebellion in that country, the queen found means to discover her, and though struck with her beauty, she recalled sufficient resentment to poison her. The queen, it is said, discovered her apartment by a thread of silk; but how she came by it is differently related. This popular story is not however supported by history; several writers mention no more of her, than that the queen so vented her spleen on Rosamond as that the lady lived not long after. Other writers assert that she died a natural death; and the story of her being poisoned is thought to have arisen from the figure of a cup on her tomb. She was buried in the church of Godstow, opposite to the high altar, where her body remained till it was ordered to be removed with every mark of disgrace by Hugh bishop of Lincoln, in 1191. She was, however, by many considered as a saint after her death, as appears from an inscription on a cross which Leland says stood near Godstow:

Qui meat hac oret, signum salutis adoret,
Utque sibi detur veniam. Rosamunda precetur.

And also by the following story: Rosamond, during her residence at her bower, made several visits to Godstow; where being frequently reproved for the life she led, and threatened with the consequences in a future state, she always answered, that she knew she should be saved; and as a token to them, showed a tree which she said would be turned into a stone when she was with the saints in heaven. Soon after her death this wonderful metamorphosis happened, and the stone was shown to strangers at Godstow till the time of the dissolution.

ROSARY, among the Roman Catholics. See CHAPLET.

ROSBACH, a town of Germany, in Saxony, famous for a victory obtained here by the king of Prussia over the French, on November 5. 1757, in which 10,000 of the French were killed or taken prisoners, with the loss of no more than 500 Prussians. See PRUSSIA, n° 30.

ROSCHILD, a town of Denmark, in the isle of Zealand, with a bishop's see and a small university. It is famous for a treaty concluded here in 1658; and in the great church there are several tombs of the kings of Denmark. It is seated at the bottom of a small bay, in E. Long. 12. 20. N. Lat. 55. 40.

ROSCOMMON, a county of Ireland, in the province of Connaught, bounded on the west by the river Suc, on the east by the Shannon, on the north by the Curlew mountains, on the south and south east by the King's county and part of Galway. Its length is 35 miles, its breadth 28. The air of the county, both on the plains and mountains, is healthy; the soil yields plenty of grass with some corn, and feeds numerous herds of cattle. The Curlew mountains on the north are very high and steep; and, till a road with great labour and difficulty was cut through them, were impassable.

ROSCOMMON, which gives the title of earl to the family of Dillon, and name to the county, though not large, is both a parliamentary borough and the county town.

ROSCOMMON (Wentworth Dillon, earl of), a celebrated poet of the 17th century, was the son of James Dillon earl of Roscommon; and was born in Ireland, under the administration of the first earl of Strafford, who was his uncle, and from whom he received the name of *Wentworth* at his baptism. He passed his infancy in Ireland; after which the earl of Strafford sent for him into England, and placed him at his own seat in Yorkshire, under the tuition of Dr Hall, afterwards bishop of Norwich, who instructed him in Latin, without teaching him the common rules of grammar, which he could never retain in his memory, and yet he learnt to write in that language with classical elegance and propriety. On the earl of Strafford's being impeached, he went to complete his education at Caen in Normandy; and after some years travelled to Rome, where he became acquainted with the most valuable remains of antiquity, and in particular was well skilled in medals, and learned to speak Italian with such grace and fluency, that he was frequently taken for a native. He returned to England soon after the Restoration, and was made captain of the band of pensioners; but a dispute with the lord privy-seal, about a part of his estate, obliged him to resign his post, and revisit his native country, where the duke of Ormond appointed him captain of the guards. He was unhappily very fond of gaming; and as he was returning to his lodgings from a gaming-table in Dublin, he was attacked in the dark by three ruffians, who were employed to assassinate him.

Roscommon.

The earl defended himself with such resolution, that he had dispatched one of the aggressors, when a gentleman passing that way took his part, and disarmed another, on which the third sought his safety in flight. This generous assistant was a disbanded officer of good family and fair reputation, but reduced to poverty; and his lordship rewarded his bravery by resigning to him his post of captain of the guards. He at length returned to London; when he was made master of the horse to the duchess of York, and married the lady Frances, eldest daughter of Richard earl of Burlington, who had been the wife of Colonel Courtney. He here distinguished himself by his writings: and in imitation of those learned and polite assemblies with which he had been acquainted abroad, began to form a society for refining and fixing the standard of the English language, in which his great friend Mr Dryden was a principal assistant. This scheme was entirely defeated by the religious commotions which ensued on king James's accession to the throne. In 1683 he was seized with the gout; and being too impatient of pain, he permitted a bold French empiric to apply a repelling medicine, in order to give him present relief; which drove the distemper into his bowels, and in a short time put a period to his life, in January 1684. He was buried with great pomp in Westminster-abbey.

His poems, which are not numerous, are in the body of English poetry collected by Dr Johnson. His "Essay on Translated Verse," and his translation of "Horace's Art of Poetry," have great merit. Waller addressed a poem to his lordship upon the latter, when he was 75 years of age. "In the writings of this nobleman we view (says Fenton) the image of a mind naturally serious and solid; richly furnished and adorned with all the ornaments of art and science; and those ornaments unaffectedly disposed in the most regular and elegant order. His imagination might probably have been more fruitful and sprightly, if his judgement had been less severe; but that severity (delivered in a masculine, clear, succinct style) contributed to make him so eminent in the didactical manner, that no man, with justice, can affirm he was ever equalled by any of our nation, without confessing at the same time that he is inferior to none. In some other kinds of writing his genius seems to have wanted fire to attain the point of perfection; but who can attain it? He was a man of an amiable disposition, as well as a good poet; as Pope, in his 'Essay on Criticism,' hath testified in the following lines:

—— Roscommon not more learn'd than good,
With manners generous as his noble blood;
To him the wit of Greece and Rome was known,
And every author's merit but his own."

We must allow of Roscommon, what Fenton has not mentioned so distinctly as he ought, and, what is yet very much to his honour, that he is perhaps the only correct writer in verse before Addison; and that, if there are not so many or so great beauties in his compositions as in those of some contemporaries, there are at least fewer faults. Nor is this his highest praise; for Pope has celebrated him as the only moral writer of King Charles's reign:

Unhappy Dryden! in all Charles's days,
Roscommon only boasts unspotted lays.

Rose.

Of Roscommon's works, the judgment of the public seems to be right. He is elegant, but not great; he never labours after exquisite beauties, and he seldom falls into gross faults. His versification is smooth, but rarely vigorous, and his rhymes are remarkably exact. He improved taste, if he did not enlarge knowledge, and may be numbered among the benefactors to English literature.

ROSE, in botany. See Rosa.

Essence of Roses. See *Roses Otter.*

Rose of Jericho, so called because it grows in the plain of Jericho, though it did not originally grow there. It has perhaps been so named by travellers who did not know that it was brought from Arabia Petræa. Rose bushes are frequently found in the fields about Jericho; but they are of a species much inferior to those so much extolled in Scripture, the flowers of which some naturalists pretend to have in their cabinets.

Travels through Syria and Palestine.

"The rose shrub of Jericho (says Mariti) is a small plant, with a bushy root, about an inch and a half in length. It has a number of stems which diverge from the earth: they are covered with few leaves; but it is loaded with flowers, which appear red when in bud, turn paler as they expand, and at length become white entirely. These flowers appear to me to have a great resemblance to those of the elder-tree; with this difference, that they are entirely destitute of smell. The stems never rise more than four or five inches from the ground. This shrub sheds its leaves and its flowers as it withers. Its branches then bend in the middle, and becoming entwined with each other to the top, form a kind of globe. This happens during the great heats; but during moist and rainy weather they again open and expand.

"In this country of ignorance and superstition, people do not judge with a philosophical eye of the alternate shutting and opening of this plant: it appears to them to be a periodical miracle, which heaven operates in order to make known the events of this world. The inhabitants of the neighbouring cantons come and examine these shrubs when they are about to undertake a journey, to form an alliance, to conclude any affair of importance, or on the birth of a son. If the stems of the plants are open, they do not doubt of success; but they account it a bad omen to see them shut, and therefore renounce their project if it be not too late.

"This plant is neither subject to rot nor to wither. It will bear to be transplanted; and thrives without degenerating in any kind of soil whatever."

Roses Otter (or essential oil of), is obtained from roses by simple distillation, and may be made in the following manner: A quantity of fresh roses, for example 40 pounds, are put in a still with 60 pounds of water, the roses being left as they are with their calyxes, but with the stems cut close. The mass is then well mixed together with the hands, and a gentle fire is made under the still; when the water begins to grow hot, and fumes to rise, the cap of the still is put on, and the pipe fixed; the chinks are then well luted with paste, and cold water put on the refrigeratory at top: the receiver is also adapted at the end of the pipe; and the fire is continued under the still, neither too violent nor too weak. When the impregnated water begins to come over, and the still is very hot, the fire is lessen-

ed by gentle degrees, and the diſtillation continued till 30 pounds of water are come over, which is generally done in about four or five hours; this roſe-water is to be poured again on a freſh quantity (40 pounds) of roſes, and from 15 to 20 pounds of water are to be drawn by diſtillation, following the ſame proceſs as before. The roſe-water thus made and cohobated will be found, if the roſes were good and freſh, and the diſtillation carefully performed, highly ſcented with the roſes. It is then poured into pans either of earthen ware or of tinned metal, and left expoſed to the freſh air for the night. The ottar or eſſence will be found in the morning congealed, and ſwimming on the top of the water; this is to be carefully ſeparated and collected either with a thin ſhell or a ſkimmer, and poured into a vial. When a certain quantity has thus been obtained, the water and feces muſt be ſeparated from the clear eſſence, which, with reſpect to the firſt, will not be difficult to do, as the eſſence congeals with a ſlight cold, and the water may then be made to run off. If, after that, the eſſence is kept fluid by heat, the feces will ſubſide, and may be ſeparated; but if the operation has been neatly performed, theſe will be little or none. The feces are as highly perfumed as the eſſence, and muſt be kept, after as much of the eſſence has been ſkimmed from the roſe-water as could be. The remaining water ſhould be uſed for freſh diſtillations, inſtead of common water, at leaſt as far as it will go.

The above is the whole proceſs, as given in the Aſiatic Reſearches by lieutenant-colonel Polier *, of making genuine otter of roſes. But attempts (he ſays) are often made to augment the quantity, though at the expence of the quality. Thus the raſpings of ſandal-wood, which contain a deal of eſſential oil, are uſed; but the impoſition is eaſily diſcovered, both by the ſmell, and becauſe the eſſential oil of ſandal-wood will not congeal in common cold. In other places they adulterate the otter by diſtilling with the roſes a ſweet-ſcented graſs, which colours it of a high clear green. This does not congeal in a ſlight cold. There are numerous other modes, far more palpable, of adulteration. The quantity of eſſential oil to be obtained from roſes is very precarious, depending on the ſkill of the diſtiller, on the quality of the roſes, and the favourableneſs of the ſeaſon. The colour of the otter is no criterion of its goodneſs, quality, or country. The calyxes by no means diminiſh the quality of otter, nor do they impart any green colour to it. They indeed augment the quantity, but the trouble neceſſary to ſtrip them is ſuch as to prevent their being often uſed.

* Vol. i. 32.

Roſe-Noble, an ancient Engliſh gold coin, firſt ſtruck in the reign of Edward III. It was formerly current at 6s. 8d. and ſo called becauſe ſtamped with a roſe. See MONEY.

Roſe Wood. See ASPALATHUS.

ROSETTO, a town of Africa, in Egypt, is pleaſantly ſituated on the weſt ſide of that branch of the Nile called by the ancients *Bolbitinum*, affirmed by Herodotus to have been formed by art; the town and caſtle being on the right hand as you enter that river. Any one that ſees the hills about Roſetto would judge that they had been the ancient barriers of the ſea, and conclude that the ſea has not loſt more ground than the ſpace between the hills and the water.

Roſetto is eſteemed one of the pleaſanteſt places in Egypt; it is about two miles long, and conſiſts only of two or three ſtreets. The country about it is moſt delightful and fertile, as is all the whole Delta on the other ſide of the Nile, exhibiting the moſt pleaſant proſpect of gardens, orchards, and corn-fields, excellently well cultivated. The caſtle ſtands about two miles north of the town, on the weſt ſide of the river. It is a ſquare building, with round towers at the four corners, mounted with ſome pieces of braſs cannon. The walls are of brick, caſed with ſtone, ſuppoſed to have been built in the time of the holy war, though ſince repaired by Cheyk Begh. At a little diſtance lower, on the other ſide of the river, is a platform, mounted with ſome guns, and to the eaſt of it are the ſalt lakes, out of which they gather great quantities of that commodity. At ſome farther diſtance, ſailing up the river, we ſee a high mountain, on which ſtands an old building that ſerves for a watch-tower. From this eminence is diſcovered a large and deep gulph, in form of a creſcent, which appears to have been the work of art, though it be now filled up, and diſcovers nothing but its ancient bed. Roſetto is grown a conſiderable place for commerce, and hath ſome good manufactures in the linen and cotton way; but its chief buſineſs is the carriage of goods to Cairo, all the European merchandiſe being brought thither from Alexandria by ſea, and carried in other boats to that capital; as thoſe that are brought down from it on the Nile are there ſhipped off for Alexandria; on which account the Europeans have here their vice-conſuls and factors to tranſact their buſineſs; and the government maintains a beigh, a cuſtomhouſe, and a garriſon, to keep all ſafe and quiet.

In the country to the north of Roſetto are delightful gardens, full of orange, lemon, and citron trees, and almoſt all ſorts of fruits, with a variety of groves of palm-trees; and when the fields are green with rice, it adds greatly to the beauty of the country. It is about 25 miles north-eaſt of Alexandria, and 100 north-weſt of Cairo. E. Long. 30. 45. N. Lat. 31. 30.

ROSICRUCIANS, a name aſſumed by a ſect or cabal of hermetical philoſophers; who aroſe, as it has been ſaid, or at leaſt became firſt taken notice of, in Germany, in the beginning of the fourteenth century. They bound themſelves together by a ſolemn ſecret, which they all ſwore inviolably to preſerve; and obliged themſelves, at their admiſſion into the order, to a ſtrict obſervance of certain eſtabliſhed rules. They pretended to know all ſciences, and chiefly medicine; whereof they publiſhed themſelves the reſtorers. They pretended to be maſters of abundance of important ſecrets, and, among others, that of the philoſopher's ſtone; all which they affirmed to have received by tradition from the ancient Egyptians, Chaldeans, the Magi, and Gymnoſophiſts. They have been diſtinguiſhed by ſeveral names, accommodated to the ſeveral branches of their doctrine. Becauſe they pretend to protract the period of human life, by means of certain noſtrums, and even to reſtore youth, they were called *Immortals*; as they pretended to know all things, they have been called *[illegible]*; and becauſe they have made no appearance for ſeveral years, unleſs the ſect of Illuminated which lately ſtarted up on the continent derives its origin from them, they have been called the *inviſible brethers*. Their ſociety is frequently

Rosicrucians.

frequently signed by the letters F. R. C. which some among them interpret *fratres roris cœli*; it being pretended, that the matter of the philosophers stone is dew concocted, exalted, &c. Some, who are no friends to free-masonry, make the present flourishing society of free-masons a branch of Rosicrucians; or rather the Rosicrucians themselves, under a new name or relation, viz. as retainers to building. And it is certain, there are some free-masons who have all the characters of Rosicrucians; but how the æra and original of masonry (see MASONRY), and that of Rosicrucianism, here fixed from Naudæus, who has written expressly on the subject, consist, we leave others to judge.

Notwithstanding the pretended antiquity of the Rosicrucians, it is probable that the alchemists, Paracelsists, or fire-philosophers, who spread themselves through almost all Europe about the close of the sixteenth century, assumed about this period the obscure and ambiguous title of Rosicrucian brethren, which commanded at first some degree of respect, as it seemed to be borrowed from the arms of Luther, which were a cross placed upon a rose. But the denomination evidently appears to be derived from the science of chemistry. It is not compounded, says Mosheim, as many imagine, of the two words *rosa* and *crux*, which signify rose and cross, but of the latter of these words, and the Latin *ros*, which signifies dew. Of all natural bodies, dew was deemed the most powerful dissolvent of gold; and the cross, in the chemical language, is equivalent to light, because the figure of a cross + exhibits, at the same time, the three letters of which the word *lux*, or light, is compounded. Now *lux* is called, by this sect, the seed or menstruum of the red dragon, or, in other words, that gross and corporeal light which, when properly digested and modified, produces gold. Hence it follows, if this etymology be admitted, that a Rosicrucian philosopher is one who, by the intervention and assistance of the dew, seeks for light, or, in other words, the substance called the philosopher's stone. The true meaning and energy of this denomination did not escape the penetration and sagacity of Gassendi, as appears by his *Examen Philosophiæ Fluddanæ*, sect. 15. tom. iii. p. 261. And it was more fully explained by Renaudot, in his *Conferences Publiques*, tom. iv. p. 87.

At the head of these fanatics were Robert Fludd, an English physician, Jacob Behmen, and Michael Mayer; but if rumour may be credited, the present Illuminated have a head of higher rank. The common principles, which serve as a kind of centre of union to the Rosicrucian society, are the following: They all maintain, that the dissolution of bodies, by the power of fire, is the only way by which men can arrive at true wisdom, and come to discern the first principles of things. They all acknowledge a certain analogy and harmony between the powers of nature and the doctrines of religion; and believe that the Deity governs the kingdom of grace by the same laws with which he rules the kingdom of nature; and hence they are led to use chemical denominations to express the truths of religion. They all hold, that there is a sort of divine energy, or soul, diffused through the frame of the universe, which some call the *argheus*, others the *universal spirit*, and which others mention under different appellations. They all talk in the most superstitious manner of what they call the signatures of things, of the power of the stars over all corporeal beings, and their particular influence upon the human race, of the efficacy of magic, and the various ranks and orders of demons — These demons they divide into two orders, *sylphs* and *gnomes*; which supplied the beautiful machinery of Pope's *Rape of the Lock*. In fine, the Rosicrucians and all their fanatical descendants agree in throwing out the most crude incomprehensible notions and ideas, in the most obscure, quaint, and unusual expressions.—Mosh. Eccl. Hist. vol. iv. p. 266, &c. English edition, 8vo. See BEEHMEN and THEOSOPHISTS.

Rosier || Roslin.

ROSIER. See PILATRE.

ROSIERS-AUX-SALINES, a town of France, in Lorraine, and in the bailiwick of Nancy, famous for its salt-works. The works that king Stanislaus made here are much admired. It is seated on the river Muert, in E. Long. 6. 27. N. Lat. 48. 32.

ROSKILD, formerly the royal residence and metropolis of Denmark, stands at a small distance from the Bay of Isefiord, not far from Copenhagen. In its flourishing state it was of great extent, and comprised within its walls 27 churches, and as many convents.— Its present circumference is scarcely half an English mile, and it contains only about 1620 souls. The houses are of brick, and of a neat appearance. The only remains of its original magnificence are the ruins of a palace and of the cathedral, a brick building with two spires, in which the kings of Denmark are interred. Little of the original building now remains. According to Holberg, it was constructed of wood, and afterwards built with stone, in the reign of Canute.— From an inscription in the choir, it appears to have been founded by Harold VI. who is styled king of Denmark, England, and Norway. Some verses, in barbarous Latin, obscurely allude to the principal incidents of his life; adding, that he built this church, and died in 980.—See Coxe's Travels into Poland, Russia, Sweden, and Denmark, vol. ii. p. 525.

ROSLEY-HILL, a village in Cumberland, with a fair on Whit-Monday, and every fortnight after till September 29. for horses, horned cattle, and linen cloth.

ROSLIN, or ROSKELYN, a place in the county of Mid Lothian in Scotland, remarkable for an ancient chapel and castle. The chapel was founded in 1446, by St Clare, prince of Orkney, for a provost, six prebendaries, and two singing-boys. The outside is ornamented with a multitude of pinnacles, and variety of ludicrous sculpture. The inside is 69 feet long, the breadth 34, supported by two rows of clustered pillars, between seven and eight feet high, with an aisle on each side. The arches are obtusely Gothic. These arches are continued across the side-aisles, but the centre of the church is one continued arch, elegantly divided into compartments, and finely sculptured. The capitals of the pillars are enriched with foliage, and a variety of figures; and amidst a heavenly concert appears a cherubim blowing the ancient Highland bagpipes. The castle is seated on a peninsulated rock, in a deep glen far beneath, and accessible by a bridge of great height. This had been the seat of the great family of *Sinclair*. Of this house was Oliver, favourite of James V. and the innocent cause of the loss of the battle of Solway Moss, by reason of the envy of the nobility on account of his being preferred to the command.

Near

Near this place the English received three defeats in one day under John de Segrave the English regent of Scotland in 1302. The Scots, under their generals Cummin and Fraser, had resolved to surprise Segrave; with which view they began their march on the night of Saturday preceding the first Sunday of Lent, and reached the English army by break of day. Segrave, however, had time to have fallen back upon the other division which lay behind him; but, either despising his enemies too much, or thinking that he would be dishonoured by a retreat, he encountered the Scots; the consequence of which was, that he himself was made prisoner, and all his men either killed or taken, except such as fled to the other division. As in this routed division there had been no fewer than 300 knights, each of whom brought at least five horsemen into the field, great part of the Scots infantry quickly furnished themselves with their horses; but, as they were dividing the spoils, another division of the English appeared, and the Scots were obliged to fight them also. The English, after a bloody engagement, were defeated a second time; which was no sooner done, than the third and most powerful division made its appearance. The Scots were now quite exhausted; and, pleading the excessive labours they had already undergone, earnestly requested their generals to allow them to retreat while it was yet in their power. Their two generals, who perhaps knew that to be impracticable, reminded them of the cause for which they were fighting, the tyranny of the English, &c. and by these arguments prevailed upon them to fight a third time; though, previous to the engagement, they were reduced to the cruel necessity of putting all the common soldiers whom they had made prisoners to the sword. The victory of the Scots at this time was less complete than the other two had been; since they could not prevent the retreat of the English to Edinburgh, nor Segrave from being rescued from his captivity.

ROSMARINUS, ROSEMARY, in botany: A genus of the monogynia order, belonging to the diandria class of plants, and in the natural method ranking under the 42d order, *Verticillatæ*. The corolla is unequal, with its upper lip bipartite; the filaments are long, curved, and simple, each having a small dent. There are two species, the angustifolia and latifolia, or narrow and broad leaved rosemary; of which the second has larger flowers and a stronger scent than the other. There are two varieties; one of the first sort with striped leaves, called the *silver rosemary*; and the other with yellow, whence it is called the *gold-striped rosemary*. These plants grow naturally in the southern parts of France, Spain, and Italy; where, upon dry rocky soils near the sea, they thrive prodigiously, and perfume the air in such a manner as to be smelt at a great distance from the land.—However, they are hardy enough to bear the cold of our ordinary winters, provided they be planted upon a poor, dry, gravelly soil, on which they will endure the cold much better than in a richer ground, where, growing more vigorously in summer, they are more apt to be injured by frost in winter; nor will they have such a strong aromatic scent as those on a dry and barren soil. They are to be propagated either by slips or cuttings.

Rosemary has a fragrant smell, and a warm pungent bitterish taste, approaching to those of lavender: the leaves and tender tops are strongest; next to those, the cup of the flower; the flowers themselves are considerably the weakest, but most pleasant. Aqueous liquors extract great share of the virtues of rosemary leaves by infusion, and elevate them in distillation; along with the water arises a considerable quantity of essential oil, of an agreeable strong penetrating smell. Pure spirit extracts in great perfection the whole aromatic flavour of the rosemary, and elevates very little of it in distillation; hence the resinous mass, left upon extracting the spirit, proves an elegant aromatic, very rich in the peculiar qualities of the plant. The flowers of rosemary give over great part of their flavour in distillation with pure spirit; by watery liquors, their fragrance is much injured; by beating, destroyed.

ROSS, in Herefordshire, in England, 119 miles from London, is a fine old town, with a good trade, on the river Wye. It was made a free borough by Henry III. It is a populous place, famous for cyder, and was noted in Camden's time for a manufacture of iron-wares. There are in it two charity-schools, which lately have been enriched by a legacy of 200 l. *per annum*, from Mr Scott, in Dec. 1786, a second *Man of Ross*. And its market and fairs are well stored with cattle and other provisions. At the west end of it there is a fine broad causeway, constructed by Mr John Kyrle, the celebrated *Man of Ross*, who also raised the spire upward of 100 feet, and inclosed a piece of ground with a stone wall, and sunk a reservoir in its centre, for the use of the inhabitants of the town. He died in 1714, aged 90, with the blessing of all who knew him, both rich and poor. There cannot be a pleasanter country than the banks of the Wye, between this town and Monmouth. W. Long. 2. 25. N. Lat. 51. 56.

Ross, a county of Scotland, including Tayne and Cromarty, stretching 80 miles in length, and 78 in breadth, is bounded on the west by the western sea, and part of the isle of Sky; by Inverness, on the south; Strathnavern and Sutherland, on the north and north-east; and by Cromarty and the Murray-Frith on the east. Tayne includes the greater part of Ross, with the isles of Sky, Lewis, and Harries. Cromarty lies on the other side of the Murray-Frith, to the northward of Inverness, extending but 12 miles in length, bounded on the south and east by part of Ross and the Frith of Murray, and by the Frith of Cromarty on the north. The shire of Ross takes up the whole breadth of the island; and being much indented with bays and inlets from both seas, appears of a very irregular form.—These bays afford safe harbours for shipping, especially that of Cromarty, which is capacious enough to contain all the fleets of Europe, being land-locked on every side, and is in all respects one of the best harbours in the known world. The Frith of Tayne, on the east side of the shire, runs up 25 miles from the sea, as far as the Cape Tarbat, dividing Ross from Sutherland: it is about seven miles broad at the mouth, but, on account of quick sands, unsafe for navigation. The country of Ross is encumbered with huge mountains, on which the snow lies for the greatest part of the year; these, however, yield good pasture; but on the eastern side, next the German ocean, the country admits of agriculture, and produces good crops of corn. The valleys are fertilized by several rivers, among which we reckon the Okel, the Charron, and the Braan; besides a number of fresh-water lakes, which indeed are found

Rofs, Roffano

found in every part of this country. The valleys, or ſtraths, are generally covered with wood; and near Alfrag there are foreſts of fir 15 or 20 miles in length, well ſtocked with deer and game of all ſorts. Great numbers of black cattle, horſes, ſheep, and goats, are fed upon the mountains; and the ſea, rivers, and lakes, teem with fiſh and fowl. The lochs on the weſtern coaſt abound with herrings in the ſeaſon, particularly Loch Eu, about nine miles long, and three in breadth; one part of this is formed by a bay, or inlet of the ſea; and the other is a lake of freſh water. The ſides of it are covered with wood, where formerly abundance of iron was ſmelted. Though the middle part of Roſs, called *Ardroſs*, is mountainous and ſcarce inhabited, the north-eaſt parts on the rivers Okel, Charron, and Frith of Tayne, are fruitful, and abound with villages. Coygach and Aſsgut, two northerly diſtricts, are bare and hilly; yet they abound with deer and black cattle; and we ſee ſeveral good houſes towards the coaſt, where there are alſo promontories, and huge rocks of marble. Ardmeanach part of the peninſula betwixt the bays of Cromarty and Murray, is a barony, which of old be owed a title on the king of Scotland's ſecond ſon. The di rict of Glen-elchig, on the ſouth-we , was the paternal e ate of the earl of Seafo th, chief of the clan of Mackenzie: but the la earl of that name, having riſen in rebellion, was in the year 1719 defeated at Glenſhiel, in this very quarter, together with a ſmall body of Spaniards by whom he had been joined. His auxiliaries were taken; and though he himſelf, with ſome of his friends, eſcaped to the continent, his e ate and honours were forfeited. At the ſame time, the king's troops, who obtained this victory, diſmantled the caſtle of Yion donnen, ſituated on an iſland in a bay that fronts the iſle of Sky. It belonged to the crown; but the office of hereditary governor was ve ed in the earl of Seaforth, and here he had erected his magazine. Roſs is chiefly peopled by the Mackenzies and Fraſers, two warlike clans, who ſpeak Erſe, and live in the Highland faſhion. There are fiſheries carried on along the coa ; but their chief traffic is with ſheep and black cattle. The chief towns of Roſs are Channerie, Dingwall, Tayne, and Fortroſe.

ROSSANO, a ſtrong town of Italy, in the kingdom of Naples, and in the Hither Calabria, with an archbiſhop's ſee, and the title of a principality. It is pretty large, well peopled, and ſeated on an eminence ſurrounded with rocks. There is nothing in this archiepiſcopal city that claims much notice; the buildings are mean, the ſtreets vilely paved and contrived. The number of inhabitants does not exceed 6000, who ſubſiſt by the ſale of their oil, the principal object of their attention, though the territory produces a great deal of good wine and corn.

Roſſano probably owes its origin to the Roman emperors, who conſidered it as a poſt equally valuable for ſtrength and convenience of traffic. The Marſans, a family of French extraction, poſſeſſed this territory, with the title of prince, from the time of Charles II. to that of Alphonſus II. when the laſt male heir was, by that prince's order, put to death in Iſchia, where he was confined for treaſon. It afterwards belonged to Bona, queen of Poland, in right of her mother Iſabella, daughter to Alphonſus II. and at her deceaſe returned to the crown. It was next in the poſſeſſion of the Aldobrandini, from whom the Borgheſi inherited it. So late as the 16th century, the inhabitants of this city ſpoke the Greek language, and followed the rites of the eaſtern church. Here was formerly the moſt celebrated rendezvous of the Baſilian monks in Magna Græcia. E. Long. 16. 52. N. Lat. 39. 45.

Ros-folis || Rota.

ROS-SOLIS, *Sun-dew*, an agreeable ſpirituous liquor, compoſed of burnt brandy, ſugar, cinnamon, and milk-water; and ſometimes perfumed with a little muſk. It has its name from being at firſt prepared wholly of the juice of the plant ros ſolis, or droſera. See DROSERA.

ROSTOCK, a town of Germany, in the circle of Upper Saxony, and duchy of Mecklenburg, with an univerſity and a very good harbour. It is the beſt town in this country; and has good fortifications, with an arſenal. The duke has a ſtrong caſtle, which may be looked upon as a citadel It is divided into three parts, the Old, the New, and the Middle Towns. It was formerly one of the Hanſeatic towns, and is ſtill Imperial, under the protection of the duke of Mecklenburg. It is ſeated on a lake where the river Varne falls into it, and carries large boats. The government is in the hands of 24 aldermen, elected out of the nobility, univerſity, and principal merchants; four of whom are burgomaſters, two chamberlains, two ſtewards for the river, and two judges of civil and criminal matters. Theſe 24 are called the Upper Houſe, and have in a manner the whole executive power lodged in them, with the power of coining money, and electing officers. There is alſo a common-council of 100 inferior citizens, who are ſummoned to give their advice upon extraordinary emergencies relating to the whole community. The principal things worth ſeeing are the fortifications, the prince's palace, the ſtadthouſe, the arſenal, and the public library. The town is famous for good beer, which they export in great quantities. Some years ago they had no leſs than 250 privileged brewers, who, it is ſaid, brewed ſo many thouſand tuns a year, beſides what particular perſons brew for their own uſe. E. Long. 12. 55. N. Lat. 54. 8.

ROSTOFF, or ROSTOW, a large town of the Ruſſian empire, and capital of a territory of the ſame name, with an archbiſhop's ſee, ſeated on the lake Coteri, in E. Long. 40. 25. N. Lat. 57. 5. The duchy of Roſtoff is bounded on the north by Jaroſlow, on the eaſt by Sutdal, on the ſouth by the duchy of Moſcow, and on the weſt by that of Tuere.

ROSTRA, in antiquity, a part of the Roman forum, wherein orations, pleadings, funeral harangues, &c. were delivered

ROSTRUM, literally denotes the beak or bill of a bird; and hence it has been figuratively applied to the beak or head of a ſhip.

ROSYCRUCIANS. See ROSICRUCIANS.

ROT, a very fatal diſeaſe incident to ſheep, ariſing from wet ſeaſons, and too moiſt paſture. It is very difficult of cure, and is attended with the ſingular circumſtance of a kind of animals being found in the blood-veſſels. See OVIS and SHEEP.

ROTA, the name of an eccleſiaſtical court of Rome, compoſed of 12 prelates, of whom one muſt be a German, another a Frenchman, and two Spaniards; the other eight are Italians, three of whom muſt be Romans, and the other five a Bologneſe, a Ferraran, a Milaneſe, a Venetian, and a Tuſcan.—This is one of the

the moſt auguſt tribunals in Rome, which takes cognizance of all ſuits in the territory of the church, by appeal; as alſo of all matters, beneficiary and patrimonial.

ROTACEÆ (from *rota*, "a wheel"), the name of the 20th order in Linnæus's Fragments of a Natural Method; conſiſting of plants with one flat, wheel-ſhaped petal, without a tube. See BOTANY, p. 461.

ROTALA, in botany; a genus of the monogynia order, belonging to the triandria claſs of plants. The calyx is tridentate; there is no corolla; the capſule is trilocular and polyſpermous.

ROTANG. See CALAMUS.

ROTATION, is a term which expreſſes the motion of the different parts of a ſolid body round an axis, and diſtinct from the progreſſive motion which it may have in its revolution round a diſtant point. The earth has a rotation round its axis, which produces the viciſſitudes of day and night; while its revolution round the ſun, combined with the obliquity of the equator, produces the varieties of ſummer and winter.

The mechaniſm of this kind of motion, or the relation which ſubſiſts between the intenſity of the moving forces, modified as it may be by the manner of application, and the velocity of rotation, is highly intereſting, both to the ſpeculative philoſopher and to the practical engineer. The preceſſion of the equinoxes, and many other aſtronomical problems of great importance and difficulty, receive their ſolutions from this quarter: and the *actual performance* of our moſt valuable machines cannot be aſcertained by the mere principles of equilibrium, but require a previous acquaintance with certain general propoſitions of rotatory motion.

It is chiefly with the view of aſſiſting the engineer that we propoſe to deliver in this place a few fundamental propoſitions; and we ſhall do it in as familiar and popular a manner as poſſible, although this may cauſe the application of them to the abſtruſe problems of aſtronomy to be greatly deficient in the elegance of which they are ſuſceptible.

When a ſolid body turns round an axis, retaining its ſhape and dimenſions, every particle is actually deſcribing a circle round this axis, and the axis paſſes through the centre of the circle, and is perpendicular to its plane. Moreover, in any inſtant of the motion, the particle is moving at right angles with the radius vector, or line joining it with *its* centre of rotation. Therefore, in order to aſcertain the direction of the motion of any particle P (fig. 1.), we may draw a ſtraight line PC from the particle perpendicular to the axis AB of rotation. This line will lie in the plane of the circle P*mn* of rotation of the particle, and will be its radius vector; and a line PQ drawn from the particle perpendicular to this radius vector will be a tangent to the circle of rotation, and will have the direction of the motion of this particle.

The whole body being ſuppoſed to turn together, it is evident, that when it has made a complete rotation, each particle has deſcribed a circumference of a circle, and the whole paths of the different particles will be in the ratio of theſe circumferences, and therefore of their radii; and this is true of any portion of a whole turn, ſuch as $\frac{1}{2}$, $\frac{1}{3}$, or 20 degrees, or any arch whatever; therefore the velocities of the different particles are proportional to their radii vectores, or to their diſtances from the axis of rotation.

And, laſtly, all theſe motions are in parallel planes, to which the axis of rotation is perpendicular.

When we compare the rotations of different bodies in reſpect of velocity, it is plain that it cannot be done by directly comparing the velocity of *any* particle in one of the bodies with that of *any* particle of the other; for, as all the particles of each have different velocities, this compariſon can eſtabliſh no ratio. But we familiarly compare ſuch motions by the number of complete turns which they make in equal times, and we ſay that the ſecond hand of a clock turns 60 times faſter than the minute hand; now this compariſon is equally juſt in any part of a turn as in the whole. While the minute-hand moves round one degree, the ſecond-hand moves 60; therefore, as the length or number of feet in the line uniformly deſcribed by a body in its progreſſive motion is a proper meaſure of its progreſſive velocity, ſo the number of degrees deſcribed by *any* particle of a whirling body in the circumference of its circle of rotation, or the angle deſcribed by *any* radius vector of that body, is a proper meaſure of its velocity of rotation. And in this manner may the rotation of two bodies be compared; and the velocity is with propriety termed ANGULAR VELOCITY.

An angle is directly as the length of the circumference on which it ſtands, and inverſely as the radius of the circle, and may be expreſſed by the fraction of which the numerator is the arch, and the denominator the radius. Thus the angle PC*p* may be expreſſed by $\frac{Pp}{PC}$. This fraction expreſſes the portion of the radius which is equal to the arch which meaſures the angle; and it is converted into the uſual denomination of degrees, by knowing that one degree, or the 360th part of the circumference, is $\frac{1}{57,296}$ of the radius, or that an arch of 57,296 degrees is equal to the radius.

When a ſolid body receives an impulſe on any one point, or when that point is anyhow urged by a moving force, it cannot move without the other points also moving. And whatever is the motion of any particle, that particle muſt be conceived as urged by a force precisely competent to the production of that motion, by acting immediately on the particle itſelf. If this is not the particle immediately acted on by the external force, the force which really impels it is a force ariſing from the coheſion of the body. The particle immediately impelled by the external force is preſſed towards its neighbouring particles, or is drawn away from them; and, by this change of place, the connecting forces are brought into action, or are excited; they act on the particles adjoining, and change, or tend to change, their diſtances from the particles immediately beyond them; and thus the forces which connect this next ſeries of particles are alſo excited, and another ſeries of particles are made to exert their forces; and this goes on through the body till we come to the remote particle, whoſe motion we are conſidering. The forces which connect it with the adjoining ſeries of particles are excited, and the particle is moved. We frequently ſay that the external moving force is propagated thro' the body to the diſtant particle; but this is not accurate. The particle is really and immediately moved by the forces which connect it with thoſe adjoining

8

Rotation

will greatly assist our conception of the manner in which motion is thus produced in a distant particle, if we consider the particles as so many little balls, connected with each other by slender spiral springs like cork-screws. This would compose a mass which would be compressible, or which could be stretched, &c. And if we give an impulse to one of these balls, we shall set the whole assemblage in motion round any axis which we may suppose to support it. Now any one of these balls is really and immediately moved by the elasticity of the spiral wires which join it to its neighbours.

8 The forces by which the particles of bodies act on each other are equal, and the consequences.

We are but little acquainted with the nature of these connecting forces. It can be learned only by the phenomena which are their effects. These are various, almost beyond description; but the mechanical philosopher has little to do with this variety. The distinctions which are the immediate causes of fluidity, of hardness, softness, elasticity, ductility, are not of very difficult conception. There is one general fact which is sufficient for our present purpose – the forces by which the particles of bodies act on each other are equal. This is a matter of unexcepted experience; and no other foundation can be given to it as a law of mechanical nature.

9 An immediate consequence of this law is, that when two external forces A and B are in equilibrium by the intervention of a solid body (or rather when a solid body is in equilibrium between two external forces), these forces are equal and opposite; for the force A is in fact in immediate equilibrium with the opposite forces exerted by the particle to which it is applied, and is therefore equal and opposite to the force resulting from the combination of all the forces which connect that particle with the series of particles immediately adjoining. This resulting force may with propriety be called the equivalent of the forces from the combination of which it results. The use of this term will greatly abbreviate language. This first set of connecting forces consists of a number of distinct forces corresponding to each particle of the series, and each force has an equal and opposite force corresponding to it: therefore the compound force by which the first series of particles acts on that to which the external force A is applied, is equal and opposite to the compound force which connects this first series with the next series. And the same thing must be said of each succeeding series of particles, till we come at last to the particle to which the external force B is immediately applied. The force exerted by this particle is equal and opposite to that external force; and it is equal to the compound force exerted by the second series of particles on that side; therefore the forces A and B are equal and opposite.

10 It results from this proposition, that *when any number of external forces are applied to a solid body, and it is in equilibrio between them, they are such as would be in equilibrio if they were all applied to one point.* Let the forces aA, bB, cC (fig. 2.), be applied to three particles of the solid body. Therefore aA is immediately in equilibrium with an equal and opposite force $A\alpha$, resulting from the composition of the force AD, which connects the particles A and B, and the force AE which connects A with C. In like manner bB is immediately in equilibrio with $B\beta$, the equivalent of the forces BF and BG; and cC is in immediate equilibrio with the equivalent $C\kappa$ of the forces CH and CI. We shall conceive it very clearly if we suppose the three forces Aa, Bb, Cc, to be exerted by means of threads pulling at the solid body. The connecting parts between A and B, as also between A and C, are stretched. The lines AB and AC may be considered as elastic threads. Each thread is equally stretched through its whole length; and therefore if we take AD to represent the force with which the particle A is held back by the particle B, and if we would also represent the force with which B is held back by A, we must make BF equal to AD. Now (n° 9.) the forces AD and BF are equal and opposite; so are the forces AE and CI; so are the forces CH and BG. Now it is evident, that if the six forces AD, BF, BG, CH, CI, AE, were applied to one particle, the particle would be in equilibrio; for each force is accompanied by an equal and opposite force: and if the force $A\alpha$ were applied in place of AD, AE, the equilibrium would remain, because $A\alpha$ is equivalent to AD and AE. The same is true of $B\beta$ and $C\kappa$. Therefore if the three forces $A\alpha$, $B\beta$, $C\kappa$, were applied to one point, they would be in equilibrio. Consequently if the three forces aA, bB, cC, which are respectively equal and opposite to $A\alpha$, $B\beta$, $C\kappa$, are so applied, they will be in equilibrio. It is plain that this demonstration may be extended to any number of forces.

We may just remark by the bye, that if three forces are thus in equilibrio, they are acting in one plane; and, if they are not parallel, they are really directed to one point: for any one of them must be equal and opposite to the equivalent of the other two; and this equivalent is the diagonal of a parallelogram, of which the other two are the sides, and the diagonal and sides of any parallelogram are in one plane; and since they are in one plane, and any one of them is in equilibrio with the equivalent of the other two, it must pass thro' the same point with that equivalent, that is, through the point of concourse of the other two.

11 Mechanical science has been rendered abstruse by attempts at simplification.

These very simple propositions are the foundation of the whole theory of statics, and render it a very simple branch of mechanical science. It has been made abstruse by our very attempts to simplify it. Many elaborate treatises have been written on the fundamental property of the lever, and in them all it has been thought next to an insuperable difficulty to demonstrate the equilibrium of a straight lever when the parallel forces are inversely as their distances from the fulcrum.

We think the demonstrations of Archimedes, Fonsenex, D'Alembert, and Hamilton, extremely ingenious; but they only bring the mind into such a state of conception that it cannot refuse the truth of the proposition; and, except Mr Hamilton's, they labour under the disadvantage of being applicable only to commensurable distances and forces. Mr Vince's, in the Philosophical Transactions for 1794, is the most ingenious of them all; and it is wonderful that it has not occurred long ago. The difficulty in them all has arisen from the attempt to simplify the matter by considering a lever as an inflexible straight line. Had it been taken out of this abstract form, and considered as what it really is, a natural body, of some size, having its particles connected by equal and opposite forces, all difficulty would have vanished.

Rotation.

12 Rule of deriving the magnitude of any moving force.

That we may apply these proportions to explain the motion of rotation, we must recollect an unquestionable proposition in dynamics, that the force which produces any motion is equal and opposite to the force which would prevent it, when applied in the same place and in the same line, or which would extinguish it in the same time in which we suppose it to be produced. Therefore the force which is excited and made to act on any particle of a body, by the action of an external force on another particle, so as to cause it to move round an axis, is equal and opposite to the force which, when applied to that particle in the opposite direction, would be in equilibrio with the external force.

13 The only distinct notion we can form of the magnitude of any moving force is the quantity of motion which it can produce by acting uniformly during some given time. This will be had by knowing the velocity which it will produce in a body of known bulk. Thus we know that the weight of ten pounds of matter acting on it for a second will cause it to fall 16 feet with an uniformly accelerated motion, and will leave it in a state such that it would move on for ever at the rate of 32 feet in a second; which we call communicating the velocity of 32 feet per second. In the same manner, the best way of acquiring a distinct conception of the rotatory effort of a moving force, is to determine the quantity of rotatory motion which it can produce by acting uniformly during some known time.

14 Measure of the quantity of effort of rotatory motions.

Let a solid body turn round an axis passing through the point C (fig. 3.) perpendicular to the plane of this figure. Let this rotation be supposed to be produced by an external force acting in the direction FP. Let this force be such, that if the body were free, that is, unconnected with any axis supported by fixed points, it would, by acting uniformly during a small moment of time, cause its centre of gravity G (A) to describe a line of a certain length parallel to FP. This we know to be the effect of a moving force acting on any solid body in free space. The centre of gravity will always describe a straight line. Other particles may chance to move differently, if the body, besides its progressive motion, has also a motion of rotation, as is generally the case. Draw GI parallel to FP, and make GI to GC as the velocity which the external force would communicate to the centre of the body (if moving freely, unconnected with a supported axis), to the velocity which it communicates to it in the same time round the axis C c. Also let m be the number of equal particles, or the quantity of matter in the body. Then m. GI will express the quantity of motion produced by this force, and is a proper measure of it as a moving force; for GI is twice the space described during the given time with an uniformly accelerated motion.

But since the body cannot move any way but round the axis passing through C, the centre G will begin to move with the velocity, and in the direction, GH perpendicular to the line CG (n° 2.) And any particle A can only move in the direction AL, perpendicular to CA. Moreover, the velocities of the different particles are as their radii vectores; and CG is actually equal to the line GH, which expresses the velocity of a particle in G. Therefore CA will in like manner express the velocity of the particle A. If A expresses its quantity of matter, A·CA will express its quantity of motion, and will represent the force which would produce it by acting uniformly during the moment of time.

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We expressed the external moving force by m.GI. Part of it is employed in exciting the force A·CA, which urges the particle A. In order to discover what part of the external force is necessary for this purpose, draw CP perpendicular to FP. The principles of observations show us, that the force wanted at A is equal to the force which, when applied at P in the direction FP, would balance the force A·CA applied to A in the direction LA. Therefore (by the property of the lever ACP, which is impelled at right angles at A and P) we must have CP to CA as the force A·CA to the balancing pressure, which must be exerted at P, or at any point in the line FP. This pressure is therefore $\frac{A \cdot CA \cdot CA}{CP}$ or $\frac{A \cdot CA^2}{CP}$. As we took m.GI for the measure of the whole external force, GI being the velocity which it would communicate to the whole body moving in free space, we may take G i for the velocity which would be communicated to the whole body by the pressure $\frac{A \cdot CA^2}{CP}$, and then this pressure will be properly expressed by m.G i. In like manner, m.i k will express the portion of the external force employed in communicating to another particle B the motion which it acquires; and so on with respect to all the particles of the body.

It must be desirable to see the manner in which the

(A) We take this term in its usual sense, as expressing that point where the sum of the *equal* gravitations of each particle may be supposed united. It is by no means (though commonly supposed) the point where the equivalent of the real gravitations of the particles may be supposed to act, and to produce the same motion as when acting on each particle separately. It is this point only when all the particles gravitate alike, and in parallel directions. If the body were near the centre of the earth for instance, the gravitations of the different particles would neither be nearly equal nor in parallel lines; and the place of its real centre of gravity, on which the equivalent of its whole gravitation may be supposed to act, would be very different from G. Were we to denominate the point G, as usually determined, by its mathematical properties, we would call it the CENTRE OF POSITION; because its distance from any plane, or its position with respect to any plane, is the average distance and position of all the particles. The true designation of G is "the point through which if *any plane whatever* be made to pass, and if perpendiculars to this plane be drawn from every particle, the sum of all the perpendiculars on one side of this plane is equal to the sum of all the perpendiculars on the other side."

If we were to denominate G by its mechanical properties, we would call it the CENTRE OF INERTIA; for this is equal in every particle, and in the same direction: and it is not in consequence of gravity, but of inertia, that the body describes with the point G a line parallel to FP. We wish this remark to be kept in mind.

Rotation. forces are really concerned in giving motion to the different particles.

Suppose the external force to act immediately on the external particle F. The line FC connecting this particle with the axis in C is either stretched or compressed by the effort of giving motion to a remote particle A. It is plain that, in the circumstances represented in the figure, the line FC is compressed, and the axis is pushed by it against its supports in the direction C; and the body must, on this account, resist in the opposite direction F*f*. The particle A is dragged out of its position, and made to begin its motion in the direction AL perpendicular to AC. This cannot be, unless by the connection of the two lines AC, AF. A resists by its inertia, and therefore both AC and AF are stretched by dragging it into motion. By this resistance the line AC tends to contract itself again, and it pulls C in the direction C*c*, and A in the direction A*a*; and if we take C*c* to represent the action on C, A*a* must be taken equal to it. In like manner AF is stretched and tends to contract, pulling F in the direction F*φ* and A in the direction A*α* with equal forces. Thus the particle A is pulled in the directions A*a* and A*α*; the particle F is pulled in the direction F*φ*, and pushed in the direction F*f*; and C is pulled in the direction C*c*, and pushed in the direction C*γ*. A*a* and A*α* have produced their equivalent AL, by which A is dragged into motion; F*f* and F*φ* produce their equivalent F*g*, by which the external force is resisted, and F*g* is equal and opposite to *m*.G*i*; the forces C*c* and C*γ* produce their equivalent C*d* by which the axis is pressed on its supports, and this is resisted by an equal and opposite reaction of the supports in the direction *d*C. The forces therefore which excite in the body the motion A.AL are both external, viz. the impelling force *g*F, and the supporting force *d*C. AL therefore is not only the immediate equivalent of A*a* and A*α*, but also the remote equivalent of *g*F and *d*C. We may therefore ascertain the proportion of *g*F (that is, of *m*.G*i*) to AL (that is, of A.AC), independent of the property of the lever. *g*F is to AL in the ratio compounded of the ratios of *g*F to F*φ* or A*α*, and of A*α* to AL. But we shall obtain it more easily by considering *g*F as the equivalent of AL and *d*C. By what has been demonstrated above, the directions of the three forces *g*F, AL, and *d*C must meet in one point E, and *g*F must be equal to the diagonal *t*E of the parallelogram E*et*, of which the sides E*e*, E*t* are respectively equal to AL and *d*C. Now *t*E is to E*e* as the sine of the angle *te*E to the sine of the angle E*te*, that is, as the sine of CEA to the sine of CEP, that is, as CA to CP, as we have already demonstrated by the property of the lever. We preferred that demonstration as the shortest, and as abundantly familiar, and as congenial with the general mechanism of rotatory motions. And the intelligent reader will observe, that this other demonstration is nothing but the demonstration by the lever expanded into its own elements. Having once made all our readers sensible of this internal process of the excitement and operation of the forces which connect the particles, we shall not again have recourse to it.

It is evident that the sum of all the forces *g*F, or *m*.G*i*, must be equal to the whole moving force *m*.GI. that *m*.P*p* may be = *m*.GI. That is, we must have $m.\mathrm{GI} = \frac{\int \mathrm{A.CA}^2}{\mathrm{CP}}$; or, because CP is given when the position of the line FP is given, we must have *m*.GI $= \frac{\int \mathrm{A.CA}}{\mathrm{CP}}$, where both A and CA are variable quantities. 17

This equation gives us $m.\mathrm{GI.CP} = \int \mathrm{A.CA}^2$. Now we learn in mechanics that the energy of any force applied to a lever, or its power of producing a motion round the fulcrum, in opposition to any resistance whatever, is expressed by the product of the force by the perpendicular drawn from the fulcrum on the line of its direction. Therefore we may call *m*.GI.CP the momentum (B), energy, or rotatory effort, of the force *m*.GI. And in like manner $\int \mathrm{A.CA}^2$ is the sum of the momenta of all the particles of the body in actual rotation; and as this rotation required the momentum *m*.GI.CP to produce it, this momentum balances, and therefore may express the energy of all the resistances made by the inertia of the particles to this motion of rotation. Or $\int \mathrm{A.CA}^2$ may express it. Or, take *p* to represent the quantity of matter in any particle, and *r* to represent its radius vector, or distance from the axis of rotation, $\int p.r^2$ will express the momentum of inertia, and the equilibrium between the momentum of the external force *m*.GI, acting in the direction FP, and the combined momenta of the inertia of all the particles of the whirling body, is expressed by the equation $m.\mathrm{GI.CP} = \int \mathrm{A.CA}^2, = \int pr^2$. The usual way of studying elementary mechanics gives us the habit of associating the word equilibrium with a state of rest; and this has made our knowledge so imperfect. But there is the same equilibrium of the actual immediate pressures when motion ensues from the action. When a weight A descending raises a smaller weight B by means of a thread passing over a pulley, the thread is equally stretched between the acting and resisting weights. The strain on this thread is undoubtedly the immediate moving force acting on B, and the immediate resisting force acting on A. 18

The same equation gives us $\mathrm{GI} = \frac{\int p.r^2}{m.\mathrm{CP}}$. 19

Now $\mathrm{GI} : \mathrm{CG} = \frac{\int p.r^2}{m.\mathrm{CP}} : \mathrm{CG}, = \int p.r^2 : m.\mathrm{CP}.\mathrm{CG}$; but CG represents the velocity of the centre. Hence we derive this fundamental proposition $\int p.r^2 : m$

(B) The word *momentum* is very carelessly used by our mechanical writers. It is frequently employed to express the product of the quantity of matter and velocity, that is, the quantity of motion; and it is also used (with strict propriety of language) to express the power, energy, or efficacy of a force to produce motion in the circumstances in which it acts. We wish to confine it to this use alone. Sir Isaac Newton adhered rigidly to this employment of the term (indeed no man exceeds him in precision of expression), even when he used it to express the quantity of motion: for in these instances the energy of this quantity of motion, as modified by the circumstances of its action, was always in the ratio of the quantity of motion.

Rotation. $: m . CP . CG = GI : CG$; or, that $\int . p . r^2$ is to $m . CP . CG$ as the velocity of the body moving freely to the velocity of the centre of gravity round the axis of rotation.

20 Therefore the velocity of the centre is $= \frac{m . GI . CP . CG}{\int p . r^2}$.

21 The velocity of any point B is $= \frac{m . GI . CP . CB}{\int p r^2}$.

This fraction represents the length of the arch described by the point B in the same time that the body unconnected with any fixed points would have described GI.

22 Therefore the angular velocity (the arch divided by the radius) common to the whole body is $= \frac{m . GI . CP}{\int p r^2}$. It may be here asked, how this fraction can express an angle? It evidently expresses a number; for both the numerator and denominator are of the same dimensions, namely, surfaces. It therefore expresses the portion of the radius which is equal to the arch measuring the angle, such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{5}$, &c. And to have this angle in degrees, we have only to recollect that the radius is $= 57,2958$.

23 This angular velocity will be a maximum when the axis of rotation passes through the centre of gravity G. For draw from any particle A the line A a perpendicular to CG, and join AG. Then $CA^2 = GA^2 + CG^2 \pm 2 CG \times G a$. Therefore $\int CA^2 = \int GA^2 + \int CG^2 \pm \int 2 CG \times G a, = \int GA^2 + m . CG^2 \pm \int 2 CG \times G a$. But, by the nature of the centre of gravity, the sum of all the $+ G a$ is equal to that of all the $- G a$; and therefore $\pm \int 2 GC \times G a$ is nothing; and therefore $\int CA^2 = \int GA^2 + m . CG^2$. Therefore $\int CA^2$ or $\int p r^2$ is smallest, and $\frac{m . GI . CP}{\int p r^2}$ is greatest when $m . CG^2$ is nothing, or when CG is nothing; that is, when C and G coincide.

24 The absolute quantity of motion in the whirling body, or the sum of the motions of all its particles, is $\frac{m . GI . CP . \int p . r}{\int p r^2}$. For the motion of each particle is $\frac{m . GI . CP . p r}{\int p r^2}$.

25 Ratio of the resistance of a quantity of matter to a motion of rotation.

The resistance which a given quantity of matter makes to a motion of rotation is proportional to $\int p r^2$. For this must be measured by the forces which must be similarly applied in order to give it the same angular motion or angular velocity. Thus let one external force be $m . GI$, and the other $m . \gamma \iota$. Let both be applied at the distance CP. Let r be the radius vector in the one body, and ρ in the other; now the angular velocities $\frac{m . GI . CP}{\int p r^2}$ and $\frac{m . \gamma \iota . CP}{\int p \rho^2}$ are equal by supposition. Therefore $m . GI : m . \gamma \iota = \int p r^2 : \int p \rho^2$.

As in the communication of motion to bodies in free space a given force always produces the same quantity of motion; so in the communication of motion to bodies obliged to turn round axes, a given force, applied at a given distance from the axes, always produces the same quantity of momentum. Whence it may easily be deduced (and we shall do it afterwards), that as in the communication of motion among free bodies the same quantity of motion is preserved, so in the communication of motion among whirling bodies the same quantity of whirling motion is preserved.

This is a proposition of the utmost importance in practical mechanics, and may indeed be considered as the fundamental proposition with respect to all machines of the rotatory kind when performing work; that is, of all machines which derive their efficacy from levers or wheels. There is a valuable set of experiments by Mr Smeaton in the Philosophical Transactions, Volume LXVI. which fully confirm it. We shall give an example by and by of the utility of the proposition, showing how exceedingly imperfect the usual theories of mechanics are which do not proceed on this principle.

26 With respect to the general proposition from which all these deductions have been made, we must observe, that the demonstration is not restricted to the time necessary for causing each particle to describe an arch equal to the radius vector. We assumed the radius vector as the measure of the velocity merely to simplify the notation. Both the progressive motion of the free body and the rotation of the whirling body are uniformly accelerated, when we suppose the external force to act uniformly during any time whatever; and the spaces described by each motion in the same time are in a constant ratio. The formulæ may therefore with equal propriety represent the momentary accelerations in the different cases.

27 All the particles of a body not necessarily supposed in one plane.

It must also be observed, that it is not necessary to suppose that all the particles of the body are in one plane, and that the moving force acts in a line FP lying also in this plane. This was tacitly allowed, merely to make the present investigation (which is addressed chiefly to the practical mechanic) more familiar and easy. The equilibrium between the force $A \times CA$, which is immediately urging the particle A, and the force $m . G i$ employed at P or F, in order to excite that force at A, would have been precisely the same although the lines AC and FP had been in different planes, provided only that these planes were parallel. This is known to every person in the least acquainted with the wheel and axle. But if the external moving force does not act in a plane parallel to the circles of rotation of the different particles, it must be resolved into two forces, one of which is perpendicular to these planes, or parallel to the axis of rotation, and the other lying in a plane of rotation. And it is this last only that we consider as the moving force; the other tends merely to push the body in the direction of its axis, but has no tendency to turn it round that axis. When we come to consider the rotation of a body perfectly free, it will be necessary to attend particularly to this circumstance. But there are several important mechanical propositions which do not require this.

28 The motion of any body is estimated by that of its centre of gravity, as is well known. The difference between the motion of the centre of a free body and the motion of the centre of a body turning round an [illegible] axis, is evidently owing to the connection which the [illegible] parts of the body have with this axis, and to the action of the points of support on this axis. This action must be considered as another external force, combined with that which acts on the particle P, and therefore must be such as, if combined with it, would produce the very motion which we observe. That is, if we

Rotation. we suppose the body unconnected with any fixed points, but as having its axis acted on by the same forces which these points exert, the body would turn as we observe it to do, the axis remaining at rest.

29 Therefore join I and H, and complete the parallelogram GHIK. It is plain that *m*. GK must represent the forces exerted by the axis on the fixed points.

30 If therefore GI should coincide with GH, and the point I with the point H, the force GK vanishes, and the body *begins* to turn round C, without exerting any pressure on the points of support; and the initial motion is the same as if the body were free. Or, the axis at C is then a *spontaneous* axis of conversion.

That this may be the case, it is necessary, in the first place, that the external force act in a direction perpendicular to C G; for G I is always parallel to FP: it being a leading proposition in dynamics, that when a moving force acts on any part whatever of a solid body, unconnected with fixed points, the centre of gravity will proceed in a straight line parallel to the direction of that force. In the next place GH must be equal to GI; that is, (n° 21) $\frac{m.GI.CP.CG}{\int p r^2}$ is equal to GI, or $\frac{m.CP.CG}{\int p r^2} = 1$, and $CP = \frac{\int p r^2}{m.CG}$.

31 The equation $CP = \frac{\int p r^2}{m.CG}$ gives us $m.CG.CP = \int p r^2 = \int A.CA^2$. But it was shown (n° 22), that $\int A.CA^2 = \int A.GA^2 + m.CG^2$. Therefore $\int A.GA^2 = m.CG.CP - m.CG.CG, = m.CG(CP - CG), = m.CG.GP$. Therefore we have (for another determination of the point of impulse P so as to annihilate all pressure on the axis) $GP = \frac{\int A.GA^2}{m.CG}$. This is generally the most easily obtained, the mathematical situation of the centre of gravity being well known.

32 *N. B.* When $CP = \frac{\int p r^2}{m.CG}$, we shall always have the *velocity* of the centre the same as if the body were free, but there will always be a pressure on the points of support, unless FP be also perpendicular to CG. In other positions of FP the pressure on the axis, or on its points of support, will be $m.GI \times 2$ sin. GCP.

33 Advantage of annihilating or diminishing the pressure on the supports of the axis of motion. It would be a desirable thing in our machines which derive their efficacy from a rotatory motion, to apply the pressures arising from the power and from the resistance opposed by the work in such a manner as to annihilate or diminish this pressure on the supports of the axis of motion. Attention to this theorem will point out what may be done; and it is at all times proper, nay necessary, to know what are the pressures in the points of support. If we are ignorant of this, we shall run the risk of our machine failing in those parts; and our anxiety to prevent this will make us load it with needless and ill-disposed strength. In the ordinary theories of machines, deduced entirely from the principles of equilibrium, the pressure on the points of support (exclusive of what proceeds from the weight of the machine itself) is stated as the same as if the moving and resisting forces were applied immediately to these points in their own directions. But this is in all cases erroneous; and, in cases of swift motions, it is greatly so. We may be convinced of this by a very simple instance. Suppose a line laid over a pulley, and a pound weight at one end of it, and ten pounds at the other; the pressure of the axis on its support is eleven pounds, according to the usual rule; whereas we shall find it only $3\frac{7}{11}$. For, if we call the radius of the pulley 1, the momentum of the moving force is $10 \times 1 - 1 \times 1, = 9$; and the momentum of inertia is $10 \times 1^2 + 1 \times 1^2$. (n° 18.) $= 11$. Therefore the angular velocity is $\frac{9}{11}$. But the distance CG of the centre of gravity from the axis of motion is also $\frac{9}{11}$, because we may suppose the two weights in contact with the circumference of the pulley. Therefore the velocity of the centre of gravity is $\frac{9}{11} \times \frac{9}{11}, = \frac{81}{121}$ of its natural velocity. It is therefore diminished $\frac{40}{121}$ by the figure of the axis of the pulley, and the 11 pounds press it with $\frac{40}{121}$ of their weight that is, with $3\frac{7}{11}$ pounds.

34 Of knowing the momentum of inertia; Since all our machines consist of inert matter, which requires force to put it in motion, or to stop it, or to change its motion, it is plain that some of our natural power is expended in producing this effect; and since the principles of equilibrium only state the proportion between the power and resistance which will preserve the machine at rest, our knowledge of the actual performance of a machine is imperfect, unless we know how much of our power is thus employed It is only the remainder which can be stated in opposition to the resistance opposed by the work. This renders it proper to give some general propositions, which enable us to compute this with ease.

35 And consequently the force necessary to overcome it. It would be very convenient, for instance, to know some point in which we might suppose the whole rotatory part of the machine concentrated; because then we could at once tell what the momentum of its inertia is, and what force we must apply to the impelled point of the machine, in order to move it with the desired velocity.

Let S, fig. 3. be this point of a body turning round the supported axis passing through C; that is, let S be such a point, that if all the matter of the body were collected there, a force applied at P will produce the same angular velocity as it would if applied at the same point of the body having its natural form.

The whole matter being collected at S, the expression $\frac{m.GI.CP}{\int p.r^2}$ of the angular velocity becomes $\frac{m.GI.CP}{m.CS^2}$ (n° 22.); and these are equal by supposition. Therefore $\int p r^2 = m.CS^2$, and $CS = \sqrt{\frac{\int p r^2}{m}}$.

This point S has been called the Centre of Gyration.

In a line or slender rod, such as a working beam, or the spoke of a wheel in a machine, C S is $\sqrt{\frac{1}{3}}$ of its length.

In a circle or cylinder, such as the solid drain of a capstan, $CS = \sqrt{\frac{1}{2}}$ its radius, or nearly $\frac{7}{10}$. But if it turns round one of its diameters, $CS = \frac{1}{2}$ radius.

In the periphery of a circle, or rim of a wheel, C S = radius nearly.

If it turn round a diameter, $CS = \sqrt{\frac{1}{2}}$ radius. The surface of a sphere, or a thin spherical shell, turning round a diameter, has $CS = \sqrt{\frac{2}{3}}$ radius, or nearly $\frac{4}{5}$ or $\frac{5}{6}$.

A solid sphere turning round a diameter has $CS = \sqrt{\frac{2}{5}}$ radius, or nearly $\frac{7}{10}$. This is useful in the problem

blem of the precession of the equinoxes. We may observe by the way, that if we consider the whirling body as a system of several bodies with rigid or inflexible connections, we may consider all the matter of each of those bodies as united in its centre of gyration, and the rotation of the whole will be the same; for this does not change the value of $\frac{\int p r^2}{m}$.

There is another way of making this correction of the motion of a machine, or allowing for the inertia of the machine itself, which is rather simpler than the one now given. We can suppose a quantity of matter collected at the point to which the moving force is applied, such that its inertia will oppose the same resistance to rotation that the machine does in its natural form. Suppose the moving force applied at P, as before, and that instead of the natural form of the body a quantity of matter $= \frac{\int p r^2}{CP}$, collected at P; the moving force will produce the same angular velocity as on the body, in its natural form. For the angular velocity in this case must be $\frac{m\ GI.CP}{\frac{\int p r^2}{CP^2}.CP^2}$ (n° 22.), which is $= \frac{m\ GI.CP}{\int p r^2}$, the same as before.

A point O may be found, at such a distance from the axis, that if all the matter of the body were collected there, and an external force m . GI applied to it in a direction perpendicular or any how inclined to C O, it will produce the same angular velocity as when applied to the centre of gravity G, with the same inclination to the line C G.

In this case, the angular velocity must be $\frac{m.GI.CO}{m.CO^2}$, (n° 22.), which is $= \frac{GI}{CO}$. This must be equal (by supposition) to the angular velocity where the same force m GI is applied in the same inclination to G.—The angular velocity in this case must be $\frac{m.GI.CG}{\int p r^2}$. Therefore we have $\frac{GI}{CO} = \frac{m.GI.CG}{\int p r^2}$, and $\frac{CO}{GI} = \frac{\int p r^2}{m.GI.CG}$, and $CO = \frac{\int p r^2}{m.CG}$. Also, as in n° 31. $GO = \frac{\int A.GA^2}{m.CG}$.

This point O has several remarkable properties.

In the first place, it is the point of a common heavy body swinging round C by its gravity, where, if all its weight be supposed to be concentrated, it will perform its oscillations in the same time. For while the body has its natural form, the whole force of gravity may be supposed to be exerted on its centre of gravity. When the matter of the body is collected at O, the force of gravity is concentrated there also; and if CG have the same inclination to the horizon in the first case that CO has in the second, the action of gravity will be applied in the same angle of inclination, and the two bodies will acquire the same angular velocity; that is, they will descend from this situation to the vertical situation (that is, through an equal angle) in the same time. These two bodies will therefore oscillate in equal times. For this reason, the point O so taken in the line CG, which is the radius vector of the centre of inertia, that CO is equal to $\frac{\int A.CA^2}{m.CG}$, or $GO = \frac{\int A.GA^2}{m.CG}$, is called the CENTRE of OSCILLATION of the body; and a heavy point suspended by a thread of the length CO is called its *equivalent* or *isochronous pendulum*, or the *simple pendulum*, corresponding to the body itself, which is considered as a *compound pendulum*, or as consisting of a number of simple pendulums, which by their rigid connection disturb each other's motions.

That C O may be the equivalent pendulum, and O the centre of oscillation, O must be in the line CG; otherwise it would not rest in the same position with the body, when no force was keeping it out of its vertical position. The equation $CO = \frac{\int A.CA^2}{m.CG}$ only determines the distance of the centre of oscillation from the centre of suspension, or the length of the equivalent simple production, but does not determine the precise point of the body occupied by the centre of oscillation; a circumstance also necessary in some cases.

Mathematicians have determined the situation of this point in many cases of frequent occurrence. Huyghens, in his *Horologium Oscillatorium*, and all the best writers of treatises of mechanics, have given the method of investigation at length. The general process is, to multiply every particle by the square of its distance from the axis of suspension, and to divide the sum of all these products by the product of the whole quantity of matter multiplied by the distance of its centre of gravity from the same axis. The quotient is the distance of the centre of oscillation, or the length of the equivalent simple pendulum: for $CO = \frac{\int A.r^2}{m.CG}$.

a. If the body is a heavy straight line, suspended by one extremity, CO is $\frac{2}{3}$ of its length.

b. This is nearly the case of a slender rod of a cylindrical or prismatic shape. It would be exactly so if all the points of a transverse section were equally distant from the axis of suspension.

c. If the pendulum is an isosceles triangle suspended by its apex, and vibrating perpendicularly to its own plane, CO is $\frac{3}{4}$ of its height.

d. This is nearly true of a very slender triangle (that is, whose height many times exceeds its base) swinging round its vertex in any direction.

e. In a very slender cone or pyramid swinging from its vertex CO, is $\frac{3}{5}$ of its height nearly.

f. If a sphere, of which r is the radius, be suspended by a thread whose weight may be neglected, and whose length is l, the distance between its centre of suspension and centres of oscillation is $a + r + \frac{2}{5}\frac{r^2}{a+r}$; and the distance between its centres of bulk and oscillation is $\frac{2}{5}\frac{r}{a+r}$. Thus, in a common seconds pendulum, whose length at London is about 39¼ inches, the centre of oscillation will be found about $\frac{1}{16}$ of an inch below the centre of the ball, if it be two inches in diameter.

g. If the weight of the thread is to be taken into the account, we have the following distance between the centre of the ball and that of oscillation, where B is the weight of the ball, a the distance of the point

Rotation. of suspension and its centre, d the diameter of the ball, and w the weight of the thread or rod,

$$GO = \frac{(\frac{1}{5}w + \frac{2}{5}B)\,d^2 - \frac{1}{8}w\,(nd + a^2)}{(\frac{1}{2}w + B)\,a - \frac{1}{2}d\,w}:$$ or, if we consider the weight of the thread as an unit, and the weight of the ball as its multiple (or as expressed by the number of times it contains the weight of the thread),

$$GO = \frac{\frac{1}{8}a}{B + \frac{1}{2}}.$$

41 As the point O, determined as above, by making $CO = \frac{\int p\,r^2}{m.CG}$, is the centre of oscillation of the body turning round C, so C is the centre of oscillation of the same body turning round O: for, resuming A.CA in place of $p\,r$, we have $\int A.CA^2 = m.CO.CG$. Now $\int A.CA^2 = \int A.OA^2 + \int A.OC^2 - \int A.OC.\,2\,O\,a$, (Euclid, II. 12. 13.), or $m.CO.CG = \int A.OA^2 + \int A.OC^2 - \int A.OC.\,2\,O\,a$. But $\int A.OC^2 = m.OC^2, = m.OC.OC$; and (by the nature of the centre of gravity) $\int A.OC.\,2\,O\,a = m.\,OC.\,2\,OG$. Therefore we have $m.CO.CG = \int A.OA^2 + m.OC.OC - m.OC.\,2\,OG$; and $\int A.OA^2 = m.OC.CG + m.CO.\,2\,OG - m\,CO.CO, = m.CO\,(CG + 2\,OG - CO)$. But $CG + 2\,OG$ is equal to $CO + OG$, and $CG + 2\,OG - CO$ is equal to OG. Therefore $\int A.OA^2 = m.CO.OG$, and $CO = \frac{\int A.OA^2}{m.OG}$, which is all that is wanted (according to n° 39.) to make C the centre of oscillation when O is the centre of suspension.

42 If the point of suspension, or axis of rotation, be anywhere in the circumference of a circle of which G is the centre, the point O will be in the circumference of another circle of which G is the centre: for, by n° 38. $GO = \frac{SA.GA^2}{m.CG}$. Now $\int A.GA^2$ is a fixed quantity; and therefore while CG is constant, OG will also be constant.

43 We may also observe, that the distance of the axis from the centre S of gyration is a mean proportional between its distance from the centre G of gravity and the centre O of oscillation: for we had (n° .) $CS^2 = \frac{\int p\,r^2}{m}$, and $CO = \frac{\int p - r^2}{m.CG}$, and therefore

$$CO.CG = \frac{\int p\,r^2}{m} = CS^2 \text{ and } CO : CS = CS : CG.$$

44 We see also that the distance CO is that at which an external force must be applied; so that there may not be any pressure excited in the axis upon its points of support, and the axis may be a spontaneous axis of conversion. This we learn, by comparing the value of CO with that of CP in art. 30. This being the case, it follows, that if an external force is applied in a direction passing thro' O, perpendicularly to CO, it will produce the same initial velocity of the centre as if the body were free: for as it exerts no pressure on the points of support, the initial motion must be the same as if they were not there.

45 If the external force be applied at a greater distance in the line CG, the velocity of the centre will be greater than if the body were free. In this case the pressure excited in the axis will be backward, and consequently the points of support will re-act forward, and this re-action will be equivalent to another external force conspiring with the one applied at O. Some curious consequences may be deduced from this.

If the external force be applied to a point in the line GC, lying beyond C, the motion of the centre will be in the opposite direction to what it would have taken had the body been free, and so will be the pressures exerted by the points of support on the axis. Why point i sometimes called centre percuss

A force $m.GI$ applied at P produces the initial progressive motion $m.GH$; and *any* force applied at O, perpendicularly to CG, produces the same motion of the centre as if the body were free. Therefore a force $m.GH$ applied thus at O will produce a motion $m.GH$ in the centre, and therefore the same motion which $m.GI$ applied at P would produce; and it will produce the momentum $m.GI$ at P. Therefore if a force equal to the progressive motion of the body be applied at O, perpendicularly to CO, in the opposite direction, it will stop all this motion without exciting any strain on the axis or points of support. Therefore the equivalent of all the motions of each particle round C is conceived as passing through O in a direction perpendicular to CO; and the blow given by that point to any body opposed to its motion is considered as equal to the compounded effect of the rotatory motion, or to the progressive motion of the body combined with its rotation. 47

48 For such reasons O has been called the Centre of Percussion of the body turning round C. But the name of *centre of momentum*, or *rotatory effort*, would have been more proper. Impropr ty of the term.

We can feel this property of the point O when we give a smart blow with a stick. If we give it a motion round the joint of the wrist only, and strike smartly with a point considerably nearer or more remote than $\frac{2}{3}$ of its length, we feel a painful shock or wrench in the hand; but if we strike with that point which is precisely at $\frac{2}{3}$ of its length, we feel no such disagreeable strain.

49 Mechanical writers frequently say, that O considered as the centre of percussion, is that with which the most violent blow is struck. But this is by no means true; O is that point of a body turning round C which gives a blow precisely equal to the progressive motion of the body, and in the same direction. As we have already said, it is the point where we may suppose the whole rotatory momentum of the body accumulated. Every particle of the body is moving in a particular direction, with a velocity proportional to its distance from the axis of rotation; and if the body were stopped in any point, each particle tending to continue its motion endeavours to drag the rest along with it. Whatever point we call the centre of percussion should have this property, that when it is stopped by a sufficient force, the whole motion and tendency to motion of every kind should be stopped; so that if at that instant the supports of the axis were annihilated, the body would remain in absolute rest.

50 The consideration of a very simple case will show that this point of stoppage cannot be taken indifferently. Suppose a square or rectangular board CDD'C', fig. 4. advancing in the direction GH, perpendicular to its plane, without any rotation. Let G be the centre of gravity, and the middle of the board. It is evident, that if a force be applied at G, in the direction HG, Centre of percussion, how defined.

and equal to the quantity of motion of the board, all motion will be ſtopped: for when the point G is ſtopped, no reaſon can be aſſigned why one part of the board ſhall advance more than another. The ſame thing muſt happen if the board be ſtopped by a ſtraight edge put in its way, and paſſing through G: for example, in the line LGM, or g G h. But if this edge be ſo placed that the board ſhall meet it with the line IPK, then, becauſe this line does not divide it equally, and becauſe there is a greater quantity of motion in the part CIKC′ than in the part IDD′K, though the progreſſive motion may be ſtopped, the upper part will advance, and a motion of rotation will commence, of which IK will be the axis. Now ſuppoſe that the board, inſtead of having been moving along in the direction GH, every part with the ſame velocity had been ſwinging round the axis CC′ like a pendulum, from the poſition C d d' C′, and that it is ſtopped by a ſtraight edge meeting it in the line LGM parallel to CC′, in the moment that it has attained the vertical poſition CDD′C′; all its motion will not be ſtopped: for, although LGM divides the board equally, there is more motion in the lower part LDD′M than in the upper part CLMC′, becauſe every particle of the lower part is deſcribing larger circles and moving ſwifter. Therefore when the line LGM is ſtopped, there will be a *tendency* of the lower part to advance, and the pivots C and C′ of the axis will be preſſed backwards on their holes; and if the holes were at that inſtant removed, a rotation would commence, of which LM is the axis. The board muſt therefore be ſtopped in ſome line IPK below LGM, and ſo ſituated, that the ſum of all the momenta on each ſide of it ſhall be equal. This alone can hinder a rotation round the axis IPK. From what has been already demonſtrated, it appears, that this will be prevented if the edge meets the board in a line IPK paſſing through O the centre of oſcillation, which is ſituated in the line gGh paſſing through the centre of gravity perpendicular to the axis CC′. This line IOK may therefore be called the *line* or *axis* of percuſſion.

But any point of this line will not do. It is evident that if the board ſhould meet the fixed edge in the line g GO h, all motion will be ſtopped, for the motions on each ſide are equal, and neither can prevail. But if it be ſtopped in the line p P q, there is more motion in the part p q D′C′ than in the part p q DC; and if the ſupports at C and C′ were that inſtant taken away, there would commence a rotation round the axis p q. Conſequently, if the body were not ſtopped by an edge, but by a ſimple point at P, this rotation would take place. The motions above and below P would indeed balance each other, but the motions on the right and left ſides of it would not. Therefore it is not enough for determining the centre of percuſſion that we have aſcertained its diſtance g O from the axis of rotation by the equation $g\,O = \frac{\int p r^2}{m.g\,G}$. This equation only gives us the line IOK parallel to CC′, but not the point of percuſſion. This point (ſuppoſe it P) muſt be ſuch that if any line p P q be drawn through it, and conſidered as an axis round which a rotation *may* commence, it *ſhall not* commence, becauſe the ſum of all the momenta round this axis on the right ſide is equal to the ſum of the momenta on the left. Let us inveſtigate in what manner this condition may be ſecured. Rotation

52

Let there be a body in a ſtate of rotation round the axis D d (fig. 5.), and let G be its centre of gravity, and CGO a line through the centre of gravity perpendicular to the axis DC d. At the moment under conſideration, the centre of gravity is moving in the direction GH, perpendicular to the radius vector GC, and alſo perpendicular to a plane paſſing through the lines D d and CG. Let O be the centre of oſcillation. Draw the line n O parallel to D d. The centre of percuſſion muſt be ſomewhere in this line. For the point of percuſſion, wherever it is, muſt be moving in the ſame direction with the progreſſive motion of the body, that is, in a direction parallel to GH, that is, perpendicular to the plane DCG. And its diſtance from the axis D d muſt be the ſame with that of the centre of oſcillation. Theſe conditions require it therefore to be in ſome point of n O. Suppoſe it at P. Draw P p perpendicular to D d. P muſt be ſo ſituated, that all the momenta tending to produce a rotation round the line p P may balance each other, or their ſum total be nothing.

Now let A be any particle of the body which is out of the plane DCG, in which lie all the lines CGO, p P, n OP, &c. Draw its radius vector A a perpendicular to D a, and draw a n parallel to CG, and therefore perpendicular to D a. The plane A a n is perpendicular to the plane D a n (Euclid, XI. 4). Draw AL perpendicular to A a, and A l perpendicular to a n. Then, while the body is beginning to turn round D d, the incipient motion of the particle A is in the direction AL, perpendicular to its radius vector A a. This motion AL may be conſidered as compounded of the motion A l, perpendicular to the plane DCG, and the motion l L in this plane. It is evident that it is A l only which is oppoſed by the external force ſtopping the body at P, becauſe A l alone makes any part of the progreſſive motion of the centre of gravity in the direction GH.

We have hitherto taken the *radii vectores* for the meaſures of the velocities or motions of the particles. Therefore the quantity of motion or the moving force of A is A.Aa, and this is exerted in the direction AL, and may be conceived as exerted on any point in this line, and therefore on the point L. That is, the point L might be conſidered as urged in this direction with the force A.A a, or with the two forces of which the force A.A a is compounded. The force in the direction AL is to the force in the direction A l as AL to A l, or as a A to a l, becauſe the triangles A l L and a l A are ſimilar. Therefore, inſtead of ſuppoſing the point L urged by the force A.A a, acting in the direction AL, we may ſuppoſe it impelled by the force A.a l, acting perpendicularly to the line A l, or to the plane DCG, and by the force A.A l acting in this plane, viz. in the direction L n. This laſt force has nothing to do with the percuſſion at P. Therefore we need conſider the point L as only impelled by the force A.A l. The momentum of this force, or its power to urge the plane DCG forward in the direction GH, by turning it round D d, muſt be A . a l. a L. (*N. B.* This is equal to A . A a^2, becauſe a l : a A = a A : a L, and A . A a^2, has been ſhown long ago to be the general

Rotation. neral expression of the rotatory momentum of a particle).

Draw Lm perpendicular to Pp. If we consider Pp as an axis about which a motion of rotation may be produced, it is plain that the momentum of the point L to produce such a rotation will be A.$a l$. Lm. In like manner, its momentum for producing a rotation round nP would be A.$a l$.Ln. In general, its momentum for producing rotation round any axis is equal to the product of the perpendicular force at L (that is, A.$a l$) and the distance of L from this axis.

In order therefore that P may be the centre of percussion, the sum of all the forces A.$a l$.L.m must be equal to nothing; that is, the sum of the forces A.$a l$.Lm on one side of this axis Pp must be balanced by the sum of forces A.$a' l'$.L$'m'$ on the other side. To express this in the usual manner, we must have $\int$A.$a l.n$P $=$ o. But nP $= n$O—OP. Therefore $\int$A.$a l.n$O $-\int$A.$a l$.OP $=$ o, and $\int$A.$a l.n$O $=$ $\int$A.$a l$.OP. But OP is the same wherever the particle A is situated; and because G is the centre of gravity, the sum of all the quantities A.$a l$ is m.GC, m being the quantity of matter of the body; that is, $\int$A.$a l = m$.GC, and $\int$A.$a l$.OP $= m$.GC.OP, $=$ $\int$A.$a l.n$O. Hence we derive the final equation

$$OP = \frac{\int A.a\,l.n\,O}{m.GC}.$$

53 Therefore the centre of percussion P of a body turning round the axis Dd is determined by these conditions: 1st, It is in the plane DCG passing through the axis and the centre of gravity; 2d, It is in a line nO passing through the centre of oscillation, and parallel to the axis, and therefore its distance Pp from the axis of rotation is $\frac{\int A \cdot A\,a^2}{m.CG}$; and, 3d, Its distance OP from the centre of oscillation is $\frac{\int A.a\,l.n\,O}{m.CG.}$.

54 How both centres coincide. In order therefore that the centres of oscillation and percussion may coincide, or be one and the same, OP must vanish, or S A.$a l.n$O must be equal to nothing, that is, the sum of all the quantities A.$a l.n$O on one side of the line CO must be equal to the sum of all the quantities A$'$.$a' l'.n'$O on the other side.

55 Let D$d\delta\Delta$ be a plane passing through the axis Dd perpendicular to that other plane DCG through it, in which the centre of gravity is situated, and let C$g\gamma\kappa$ be a third plane passing through the centre of gravity perpendicular to both the planes D$d\delta\Delta$ and DCG. Draw $l r$ and $a\alpha$ perpendicular to aL, and $r\lambda$ perpendicular to $c r$, and then draw Aα, Aλ perpendicular to $a\alpha$ and $r\lambda$. It is evident that Aα and Aλ are respectively equal to $a l$ and $l r$, or to $a l$ and $n o$; so that the two factors or constituents of the momentum of a particle A round the centre of percussion are the distances of the particle from the planes D$d\delta\Delta$ and $\kappa c g\gamma$, both of which are perpendicular to that plane through the axis in which the centre of gravity is placed.

We may see, from these observations, that the centres of oscillation and percussion do not necessarily coincide, and the circumstance which is necessary for their coincidence, viz. that $\int$A.Aα.Aλ is equal to O. It is of importance to keep this in mind.

56 Further considerations of importance. There occurs here another observation of great importance. Since every force is balanced by an equal force acting in the opposite direction, and since all motion progressive and rotatory is stopped by an external force applied at P in the direction qP, it follows that, if the body were at rest, and the same force be applied there, it will set the body in rotation round the axis Dd, in the opposite direction, with the same angular velocity, and without any pressure on the pivots D and d. For whatever motion of the particle A, in the direction AL, was stopped by a part of the external force applied at P, the same motion will be produced by it in the quiescent particle A in the opposite direction LA. And as the pivots D and d had no motion in the case of the body turning round them, they will acquire no motion, or will have no tendency to motion, or no pressure will be exerted on them, in the last case. Therefore when an external force is applied at P in a direction perpendicular to the line Pp, the line Dd will become a momentary spontaneous axis of conversion, and the incipient motion of the body will perfectly resemble the rotation of the same body round a fixed axis Dd.

There is another set of forces of which we have as yet taken no notice, viz. that part of each force AL 57 which is directed along the plane DCG, and is represented by lL when the whole force is represented by AL, or by Al when the whole force is represented by Aa. These forces being all in the plane DCG, and in the direction CG or GC, can have no effect on the rotation round any axis in that plane. But they tend, separately, to produce rotation round any axis passing through this plane perpendicularly. And the momentum of A to produce a rotation round an axis perpendicular to this plane, in O for instance, must evidently be A.A$l.n$O, and round P it must be A.A$l.n$P, &c. We shall have occasion to consider these afterwards.

58 Of balls rolling down inclined planes. It is usual in courses of experimental philosophy to illustrate the motions of bodies on inclined planes and curved surfaces by experiments with balls rolling down these surfaces. But the motions of such rolling balls are by no means just representations of the motions they represent. The ball not only goes down the inclined plane by the action of gravity, but it also turns round an axis. Force is necessary for producing this rotation; and as there is no other source but the weight of the ball, part of this weight is expended on the rotation, and the remainder only accelerates it down the plane. The point of the ball which rests on the plane is hindered from sliding down by friction; and therefore the ball tumbles, as it were, over this point of contact, and is instantly catched by another point of contact, over which it tumbles in the same manner. A cylinder rolls down in the very same way; and its motion is nearly the same as if a fine thread had been lapped round it, and one end of it made fast at the head of the inclined plane. The cylinder rolls down by unwinding this thread.

59 Mechanism of these motions. The mechanism of all such motions (and some of them are important) may be understood by considering them as follows: Let a body of any shape be connected with a cylinder FCB (fig. 6.) whose axis passes through G the centre of gravity of the body. Suppose that body suspended from a fixed point A by a thread wound round the cylinder. This body will descend by the action of gravity, and it will also turn round, unwinding the thread. Draw the horizontal line

Mechanics. line OGC. It will pass through the point of contact C of the thread and cylinder, and C is the point round which it *begins* to turn in descending. Let O be its centre of oscillation corresponding to the momentary centre of rotation C. It will begin to descend in the same manner as if all its matter were collected in O: for it may be considered, in this instant, as a pendulum suspended at C. But in this case O will descend in the same manner as if the body were falling freely. Therefore the velocity of G (that is, the velocity of descent) will be to the velocity with which a heavy body would fall as CG to CO. Now since the points C, G, O, are always in a horizontal line, and the radius CG is given; as also CO (n° 48.) the velocity of a body falling freely, and of the body unwinding from this thread, will always be in the same proportion of CO to CG, and so will the spaces described in any given time. And thus we can compare their motions in every case when we know the place of the centre of oscillation.

60 *Cor.* 1. The weight of the descending body will be to the tension of the thread as CO to GO: for the tension of the thread is the difference between the momentum of the rolling body and that of the body falling freely.

Observe, that this proportion between the weight of the body and the tension of the thread will be always the same: for it has been demonstrated already, n° 42. that if C be in the circumference of a circle whose centre is G, O will be in the circumference of another circle round the same centre, and therefore the ratio of CG to CO is constant.

61 *Cor.* 2. If a circular body FCB roll down an inclined plane by unfolding a thread, or by friction which prevents all sliding, the space described will be to that which the body would describe freely as CG to CO: for the tendency down the inclined plane is a determined proportion of the weight of the body. The motion of rotation in these cases, both progressive and whirling, is uniformly accelerated.

62 Use of pendulous bodies. Something of the same kind obtains in common pendulous bodies. A ball hung by a thread not only oscillates, but also makes part of a rotation; and for this reason its oscillations differ from those of a heavy point hanging by the same thread, and the centre of oscillation is a little below the centre of the ball. A ball hung by a thread, and oscillating between cycloidal cheeks, does not oscillate like a body in a cycloid, because its centre of oscillation is continually shifting its place. Huyghens avoided this by suspending his pendulous body from two points, so that it did not change its attitude during its oscillation. If our spring-carriages were hung in this manner, having the four lower staples to which the straps are fixed as far asunder as the four upper staples at the ends of the springs, the body of the carriage would perform its oscillations without kicking up and down in the disagreeable manner they now do, by which we are frequently in danger of striking the glasses with our heads. The swings would indeed be greater, but incomparably easier; and we could hold things almost as steadily in our hand as if the carriage were not swinging at all.

This will suffice for an account of the rotation round fixed axes, as the foundation for a theory of machines actually performing work. The limits of our undertaking will not allow us to do any more than just point out the method of applying it.

63 Method of applying theory to practice.

Let there be any machine of the rotatory kind, i.e. composed of levers or wheels, and let its construction be such, that the velocity of the point to which the power is applied (which we shall call the *impelled point*) is to the velocity of the working point in the ratio of m to n. It is well known that the energy of this machine will be the same with that of an axis in peritrochio, of which the radii are m and n.

Let p express the actual pressure exerted on the impelled point by the moving power, and let r be the actual pressure or resistance exerted on the working point by the work to be performed. Let x be the inertia of the power, or the quantity of dead matter which must move with the velocity of the impelled point in order that the moving power may act. Thus the moving power may be *the weight* of a bucket of water in a water-wheel; then x is the quantity of matter in this bucket of water. Let y in like manner be the inertia of the work, or matter which must be moved with the velocity of the working-point, in order that the work may be performed. Thus y may be a quantity of water which must be continually pushed along a pipe. This is quite different from the weight of the water, though it is proportional to it, and may be measured by it.

Let f be a pressure giving the same resistance when applied at the working-point with the friction of the machine, and let an^2 be the momentum of the machine's inertia, viz. the same as if a proper quantity of matter a were attached to the working-point, or to any point at the same distance from the axis.

This state of things may be represented by the wheel and axle PQS (fig. 7.) where x and y and z are represented by weights acting by lines. P is the impelled point, and R the working-point; CP is m and CR is n. The moving force is represented by PA, the resistance by RB, and the friction by BF.

It is evident that the momentum of the inertia of x, y, and a are the same as if they were for a moment attached to the points P and R.

Hence we derive the following expressions,

64 Formulæ, and their use in practice.

1. The angular velocity $= \dfrac{pm - r + fn}{xm^2 + y + an^2}$.

2. Velocity of the working-point $= \dfrac{pmn - r + fn^2}{xm^2 + y + an^2}$ 65

3. Work performed $= \dfrac{pmnr - r + fn^2 r}{xm^2 + y + an^2}$. 66

For the work is proportional to the product of the resistance and the velocity with which it is overcome.

We shall give a very simple example of the utility of these formulæ. Let us suppose that water is to be raised in a bucket by the descent of a weight, and that the machine is a simple pulley. Such a machine is described by Desaguliers *, who says he found it preferable to all other machines. The bucket dipped into the cistern. A chain from it went over a pulley, and at its extremity was a stage on which a man could step from the head of a stair. His preponderance brought down the stage and raised the bucket, which discharged its water into another cistern. The man quitted the stage, and walked up stairs, and there he found it

* Experim. Phil. vol. 1. p. 239.

Rotation. it ready to receive him, becauſe the empty bucket is made heavier than the empty ſtage.

Now, if there be no water in the bucket, it is evident, that although the motion of the machine will be the quickeſt poſſible, there will be no work performed. On the other hand, if the loaded ſtage and the full bucket are of equal weight, which is the uſual ſtatement of ſuch a machine in elementary treatiſes of mechanics, the machine will ſtand ſtill, and no work will be performed. In every intermediate ſtate of things the machine will move, and work will be performed. Therefore the different values of the work performed muſt be a ſeries of quantities which increaſe from nothing to a certain magnitude, and then diminiſh to nothing again. The maxim which is uſually received as a fundamental propoſition in mechanics, viz. that what is gained in force by the intervention of a machine is loſt in time, is therefore falſe. There muſt be a particular proportion of the velocities of the impelled and working-points, which will give the greateſt performance when the power and reſiſtance are given; and there is a certain proportion of the power and reſiſtance which will have the ſame effect when the ſtructure of the machine has previouſly fixed the velocities of the impelled and working points.

67 This proportion will be found by treating the formula which expreſſes the work as a fluxionary quantity, and finding its maximum. Thus, when the ratio of the power and reſiſtance is given, and we wiſh to know what muſt be the proportion of the velocities m and n, that we may conſtruct the machine accordingly, we have only to conſider n as the variable quantity in the third formula. This gives us

$$n = m \times \frac{\sqrt{x^2 \times \overline{r+f}^2 + p^2 x\ \overline{a+y}} - x\overline{r+f}}{p\overline{a+y}}$$

68 This is a fundamental propoſition in the theory of working machines: but the application requires much attention. Some natural powers are not accompanied by any inertia worth minding; in which caſe x may be omitted. Some works, in like manner, are not accompanied by any inertia; and this is a very general caſe. In many caſes the work exerts no contrary ſtrain on the machine at reſt, and r is nothing. In moſt inſtances the intenſity of the power varies with the velocity of the impelled point, and is diminiſhed when this increaſes; the reſiſtance or actual preſſure at the working point frequently increaſes with the velocity of the working-point. All theſe circumſtances muſt be attended to; but ſtill they only modify the general propoſition. Theſe are matters which do not come within the limits of the preſent article. We only took this opportunity of ſhowing how imperfect is the theory of machines in equilibrio for giving us any knowledge of their performance or juſt principles of their conſtruction.

69 Common mode of eſtimating external impulſions. One thing, however, muſt be particularly attended to in this theory. The forces which are applied to the body moveable round an axis are conſidered in the theory as preſſures actually exerted on the impelled points of the body or machine, as when a weight is appended to a lever or wheel and axle, and, by deſcending uniformly, acts with its whole weight. In this caſe the weight multiplied by its diſtance from the axis will always expreſs its momentum, and the rotation will (*cæteris paribus*) be proportional to this product. But in many important caſes our machines are actuated by external impulſions. A body in motion ſtrikes on the impelled point of the machine, and cauſes it to turn round its axis. It is natural for us to conſider the quantity of motion of this impelling body as the meaſure of our moving force. Suppoſing n to be its quantity of matter, and V its velocity, nV appears a very proper meaſure of its intenſity. And if it be applied at the diſtance CP from the axis of rotation, nV·CP ſhould expreſs its energy, momentum, or power to turn the machine round C; and we ſhould expreſs the angular velocity by $\frac{n\text{V}\cdot\text{CP}}{\int p\, r^2}$. Accordingly, this is the manner in which calculations are uſually made for the conſtruction and performance of the machine, as may be ſeen in almoſt every treatiſe of mechanics.

70 Shown to be erroneous. But nothing can be more erroneous, as we ſhall ſhow by a very ſimple inſtance. It ſhould reſult from theſe principles that the angular velocity will be proportional to CP. Let us ſuppoſe our moving power to be a ſtream of water moving at the rate of ten feet per ſecond, and that every ſecond there paſſes 100 pounds of water. We ſhould then call our moving force 1000. It is evident, that if we ſuppoſe the arm of the float-board on which it ſtrikes to be infinitely long, the impelled point can never move faſter than 10 feet in a ſecond, and this will make the angular velocity infinitely ſmall, inſtead of being the greateſt of all. The rotation will therefore certainly be greater if CP be ſhorter. We need not examine the caſe more minutely.

71 Diſtinction to be made between the quantity of motion and moving power of an impelling body. We muſt therefore carefully diſtinguiſh between the quantity of motion of the impelling body and its moving power, as it is modified by its manner of acting. The moving power is the *preſſure actually exerted* on the impelled point of the machine. Now the univerſal fact of the equality of action and reaction in the colliſion of bodies aſſures us, that their mutual preſſure in their colliſion is meaſured by the *change* of motion which each ſuſtains: for this change of motion is the only indication and meaſure of the preſſure which we ſuppoſe to be its cauſe. A way therefore of aſcertaining what is the real moving force on a machine actuated by the impulſion of a moving body, is to diſcover what quantity of motion is loſt by the body or gained by the machine; for theſe are equal. Having diſcovered this, we may proceed according to the propoſitions of rotatory motion.

72 Therefore let AEF (fig. 8.) repreſent a body moveable round an axis paſſing through C, perpendicular to the plane of the figure. Let this body be ſtruck in the point A by a body moving in the direction FA, and let BAD be a tangent to the two bodies in the point of colliſion. It is well known that the mutual actions of two ſolid bodies are always exerted in a direction perpendicular to the touching ſurfaces. Therefore the mutual preſſure of the two bodies is in the direction AP perpendicular to AD. Therefore let the motion of the impelling body be reſolved into the directions AP and AD. The force AD has no ſhare in the preſſure. Therefore let V be the velocity of the impelling body eſtimated in the direction AP, and let n be its quantity of matter. Its quantity of motion in the direction AP will be nV.

Did AP paſs through C, it is evident that the only effect

Rotation. effect would be to press the axis on its supports. But AP, the direction of the pressure, being inclined to AC, the point A is forced aside, and in some small moment of time describes the little arch A a round the centre C. The point P will therefore describe a small arch Pp, subtending an angle PCp=ACa. Draw $a\,o$ perpendicular to AP, and $a\,d$ perpendicular to AD. The triangles dAo, ACP are similar, and Aa : Ao= AC : CP. But the angles ACa, PCp being equal, the arches are as their radii, and Aa : Pp = AC : CP, = Aa : Ao; therefore : p=Ao.

Now since, in consequence of the impulse, A describes Aa in the moment of time, it is plain that Ao is the space through which the impelling body continues to advance in the direction of the pressure; and if V be taken equal to the space which it described in an equal moment before the stroke, v will express the remaining velocity, and V—v is the velocity lost, and n(V—v) is the quantity of motion lost by the impelling body, and is the true measure of the pressure exerted. This gives us the whole circumstances of the rotatory motion. The angular velocity will be $\frac{n(V-v)\cdot CP}{\int p\,r^2}$, and the velocity of the point A will be $\frac{n(V-v)\cdot CP\cdot CA}{\int p\,r^2}$. Call this velocity u. The similarity of triangles gives us CA : CP=Aa (or u) : Ao (or v) and $u=\frac{v.CA}{CP}$. Therefore $\frac{V\cdot CA}{CP}=\frac{n(V-v)CP.CA}{\int p\,r^2}$. From this we deduce $v=\frac{n.V.CP^2}{\int p\,r^2+n.CP^2}$, and thus we have obtained the value of v in known quantities; for n was given, or supposed known; so also was V: and since the direction FA was given, its distance CP from the axis is given; and the form of the body being known, we can find the value of $\int p\,r^2$. Now we have seen that v is also the velocity of the point P; therefore we know the absolute velocity of a given point of the body or machine, and consequently the whole rotatory motion.

73 We have the angular velocity $=\frac{n\,V\cdot CP}{\int p\,r^2+n.CP^2}$: we shall find this a maximum when $\int p\,r^2=n.CP^2$; and in this case CP $=\sqrt{\frac{\int p\,r^2}{n}}$, and $v=\frac{1}{2}V$. So that the greatest velocity of rotation will be produced when the striking body loses $\frac{1}{2}$ of its velocity.

74 Authors treating of the application of that theory recommended. What we have now delivered is sufficient for explaining all the motions of bodies turning round fixed axes; and we presume it to be agreeable to our readers, that we have given the investigation of the centres of gyration, oscillation, and percussion. The curious reader will find the application of these theorems to the theory of machines in two very valuable dissertations by Mr Euler in the Memoirs of the Academy of Berlin, vols viii. and x. and occasionally by other authors who have treated mechanics in a scientific and useful manner, going beyond the school-boy elements of equilibrium.

75 Of the rotation of free bodies. There remains a very important case of the rotation of bodies, without which the knowledge of the motion of solid bodies is incomplete; namely, the rotation of free bodies, that is, of bodies unconnected with any fixed points. We hardly see an instance of motion of a free body without some rotation. A stone thrown from the hand, a ball from a cannon, the planets themselves, are observed not only to advance, but also to whirl round. The famous problem of the precession of the equinoxes depends for its solution on this doctrine; and the theory of the working of ships has the same foundation. We can only touch on the leading propositions.

76 We need not begin by demonstrating, that when the direction of the external force passes through the centre of the body, the body will advance without any rotation. This we consider as familiarly known to every person versant in mechanics; nor is it necessary to demonstrate, that when the direction of the moving force does not pass through the centre of gravity, this centre will still advance in a direction parallel to that of the moving force, and with the same velocity as if the direction of the moving force had passed through it. This is the immediate consequence of the equality of action and reaction observed in all the mechanical phenomena of the universe.

But it is incumbent on us to demonstrate, that when the direction of the moving force does not pass thro' the centre of gravity, the body will not only advance in the direction of the moving force, but will also turn round an axis, and we must determine the position of this axis, and the relation subsisting between the progressive and rotatory motions.

The celebrated John Bernoulli was the first who considered this subject; and, in his *Disquisitiones Mechanico-dynamicæ*, he has demonstrated several propositions concerning the spontaneous axis of conversion, and the motions arising from eccentric external forces: and although he assumed for the leading principle a proposition which is true only in a great number of cases, he has determined the rotation of spherical bodies with great accuracy.

77 This combination of motions will be palpable in some simple cases, such as the following: Let two equal bodies A and B (fig. 9.) be connected by an inflexible rod (of which we may neglect the inertia for the present). Let G be the middle point, and therefore the centre of gravity. Let an external force act on the point P in the direction FP perpendicular to AB, and let AP be double of PB. Also let the force be such, that it would have caused the system to have moved from the situation AB to the situation $a\,b$, in an indefinitely small moment of time, had it acted immediately on the centre G. G would in this case have described Gg, A would have described Aa, and B would have described Bb, and $a\,b$ would have been parallel to AB: for the force impressed on A would have been equal to the force impressed on B; but because the force acts on P, the force impressed on A is but one half of that impressed on B by the property of the lever: therefore the initial motion or acceleration of A will be only half of the initial motion of B; yet the centre G must still be at g. We shall therefore ascertain the initial motion of the system, by drawing through g a line $\alpha\,g\,\beta$, so that Aα shall be $\frac{1}{2}$ of Bβ. This we shall do by making AC=AB, and drawing C$\alpha\,g\,\beta$. Then $\alpha\,\beta$ will be the position of the system at the end of the moment of time. Thus we see that the body must have a motion of rotation combined with its progressive motion.

Rotation.

78 How motion is performed in these cases.

And we deduce immediately from the premises that this rotation is performed round an axis passing through the centre of gravity G: for since the centre describes a straight line, it is never either above or below the axis of rotation, and is therefore always in it. This is a fundamental theorem, and our subsequent investigation is by this means greatly simplified, being thus reduced to two problems: 1. To determine in what direction the axis passes through the centre of gravity. 2. To determine the angular velocity of the rotation, or how far the centre must advance while the body makes one turn round the axis. This establishes the relation between the progressive and rotatory motions. It will contribute to our better conception of both these problems to see the result in the present simple case.

79 It is evident, in the first place, that the impressions made on A and B are in lines A a, B b parallel to FP and G g; and therefore the motions of the points A, G, and B, are made in one plane, viz. the plane FPG. The axis of rotation therefore must be a line drawn through G, perpendicular to this plane. If we give it any other position, one of the points A, B, or both of them, must quit this plane.

In the next place, in ba produced take bc = BC. Then supposing AC to be a rigid line connected with the system, it is evident that if there had been no rotation, the line BC would have kept parallel to its first position, and that at the end of the moment of time C would have been at c. The point C therefore has had, by the rotation, a backward motion cC, relative to the centre G or g, and this motion is equal to the progressive motion G g of the centre; therefore if we make G γ equal to the circumference of a circle whose radius is CG, the body will make one rotation round the centre of gravity, while this centre moves along G γ; and thus the relation is established between the two motions.

80 But farther, the point C has, in fact, not moved out of its place. The incipient motion has therefore been such, that C has become a spontaneous centre of conversion. It is easy to see that this must always be the case, whatever may be the form of the rigid body or system of particles connected by inflexible and inextensible lines. Since the system both advances and turns round an axis passing through its centre of gravity, there must be some point in the system, or which may be conceived as connected with it by an inflexible line, which moves backward, by the rotation, as fast as the centre advances forward. A line drawn through this point parallel to the axis must in this instant be at rest, and therefore must be a spontaneous axis of conversion. And, in this instant, the combined motions of rotation round an axis passing through the centre of gravity and the motion of progression, are equivalent to, and actually constitute, an incipient simple motion of rotation round another axis parallel to the former, whose position may be ascertained. But it is necessary to establish this proposition and its converse on clearer evidence.

81 Therefore let G (fig. 10.) be the centre of gravity of a rigid system of particles of matter, such as we suppose a solid body to be. Let this system be supposed to turn round the axis G g, while the axis itself is moving forward in the direction and with the velocity GI. Let the rotation be such, that a particle A has the direction and velocity A h. Let us first suppose the progressive motion GI to be perpendicular to the axis G g. It will therefore be parallel to the planes of the circles described round the axis by the different particles. Let C G g be a plane perpendicular to G I. It will cut the plane of the circle described by A in a straight line cg, and g will be the centre round which A is turning. Therefore A g will be the radius vector of A, and A h is perpendicular to A g. Let A d be perpendicular to cg, and in A d take A e equal to G I or gi. It is evident, that the absolute motion of A is compounded of the motions A e and A h, and is the diagonal A f of the parallelogram A efh. In the line gc, which is perpendicular to G g, take gc to gA, as A e to A h, and draw cC parallel to gG, and produce hA till it cut cg in n. We say that C c is in this moment a spontaneous axis of conversion; for, because A n is perpendicular to A g and A d to C g, the angle cgA is equal to dA n, or fhA. Therefore, since $cg : g$A = $fh : h$A, the triangles cgA and fhA are similar, and the angle gA c is equal to hA f. Take away the common angle gA f, and the remaining angle cA f is equal to the remaining angle hA g, and A f is perpendicular to A c, and the incipient motion of A is the same in respect of direction as if it were turning round the axis cC. Moreover, A f is to fh or gi as A c to cg. Therefore, both the direction and velocity of the absolute motion of A is the same as if the body were turning round the fixed axis cC; and the combined motion A e of progression, and the motion A h of rotation round G g, are equivalent to, and really constitute, a momentary simple motion of rotation round the axis C c given in position, that is, determinable by the ratio of A e to A h.

82 On the other hand, the converse proposition is, that a simple motion of rotation round a fixed axis C c, such that the centre G has the velocity and direction GI perpendicular to C G, is equivalent to, and produces a motion of rotation round an axis G g, along with the progressive motion GI of this axis. This proposition is demonstrated in the very same way, from the consideration that, by the rotation round C c, we have cA : cg = A f : gi. From this we deduce, that A h is perpendicular to A g, and that fh : A h = cg : gA; and thus we resolve the motion A f into a motion A h of rotation round G g, and a motion A e of progression common to the whole body.

83 But let us not confine the progressive motion to the direction perpendicular to the axis G g. Let us suppose that the whole body, while turning round G g, is carried forward in the direction and with the velocity G K. We can always conceive a plane L G C, which is perpendicular to the plane in which the axis G g and the direction G K of the progressive motion are situated — And the motion G K may be conceived as compounded of a motion GI perpendicular to this plane and to the axis; and a motion of translation G L, by which the axis slides along in its own direction. It is evident, that in consequence of the first motion GI, there arises a motion of rotation round C c. It is also evident, that if, while the body is turning for a moment round C c, this line be slid along itself in the direction cC, a motion equal to G L will be induced on every particle A, and compounded with its motion of rotation A F, and that if $f\phi$ be drawn equal and parallel to G L, ϕ will be the situation of the particle A when G is in K

84 And thus it appears, that when the progressive motion

tion is perpendicular to the axis of rotation passing through the centre of gravity, the two motions progressive and rotatory are equivalent to a momentary simple motion of rotation round a spontaneous axis of conversion, which is at rest: but when the progressive motion is inclined to the axis passing thro' the centre, the spontaneous axis of conversion is sliding in its own direction.

We may conceive the whole of this very distinctly and accurately by attending to the motion of a garden roller. We may suppose it six feet in circumference, and that it is dragged along at the rate of three feet in a second from east to west, the axis of the roller lying north and south. Suppose a chalk line drawn on the surface of the roller parallel to its axis. The roller will turn once round in two seconds, and this line will be in contact with the ground at the intervals of every six feet. In that instant the line on the roller now spoken of is at rest, and the motion is the same as if it were fixed, and the roller really turning round it. In short, it is then a spontaneous axis of conversion.

Now, suppose the roller dragged in the same manner and in the same direction along a sheet of ice, while the ice is floating to the south at the rate of four feet in a second. It is now plain that the roller is turning round an axis through its centre of gravity, while the centre is carried in the direction S 36° 52′ W. at the rate of five feet *per* second. It is also plain, that when the line drawn on the surface of the stone is applied to the ice, its only motion is that which the ice itself has to the southward. The motion is now a motion of rotation round this spontaneous axis of conversion, compounded with the motion of four feet *per* second in the direction of this axis. And thus we see that any complication of motion of rotation round an axis passing through the centre of gravity, and a motion of progression of that centre, may always be reduced to a momentary or incipient motion of rotation round another axis parallel to the former, compounded with a motion of that axis in its own direction.

85 The demonstration which we have given of these two propositions points out the method of finding the axis C *c*, the incipient rotation round which is equivalent to the combined progressive motion of the body, and the rotation round the axis G *g*. We have only to note the rotatory velocity A *h* of some particle *h*, and its distance A *g* from the axis, and the progressive velocity GI of the whole body, and then to make G C a fourth proportional to A *h*, GI, and *g*A, and to place GC in a plane perpendicular to C I, which is perpendicular to G *g*, and to place C on that side of G *g* which is moving in the opposite direction to the axis.

86 In the simple case of this problem, which we exhibited in order to give us easy and familiar notions of the subject, it appeared that the retrograde velocity of rotation of the point C was equal to the progressive velocity of the centre. This must be the case in every point of the circumference of the circle of which CG, fig. 9. is the radius. Therefore, as the body advances, and turns round G, this circle will apply itself in succession to the line CK parallel to G *g*; and any individual point of it, such as C, will describe a cycloid of which this circle is the generating circle, C K the base, and C G half the altitude. The other points of the body will describe trochoids, elongated or contracted according as the describing points are nearer to or more remote from G than the point C is.

It is now evident that all this must obtain in every case, as well as in this simple one. And when we have ascertained the distance G C between the axis of rotation passing through the centre, and the momentary spontaneous axis of conversion passing through C, we can then proceed to ascertain the relation between the motions of rotation and progression. We then know that the body will make one rotation round its central axis, while its centre moves over a space equal to the circumference of a circle of a known diameter. Therefore, by the application of the principles explained.

We must therefore proceed to the methods for determining the position of the point C. This must depend on the proportion between the velocity of the general progressive motion, that is, the velocity of the centre, and the velocity of some point of the body.—This must be ascertained by observation. In most cases which are interesting, we learn the position of the axis, the place of its poles, the comparative progressive velocity of the centre, and the velocity of rotation of the different points, in a variety of ways; and it would not much increase our knowledge to detail the rules which may be followed for this purpose. The circumstance which chiefly interests us at present is to know how these motions may be produced; what force is necessary, and how it must be applied, in order to produce a given motion of rotation and progression; or what will be the motion which a given force, applied in a given manner, will produce.

We have already given the principles on which we may proceed in this investigation. We have shown the circumstances which determine the place of the centre of percussion or a body turning round a given fixed axis. This centre of percussion is the point of the body where all the inherent forces of the whirling body precisely balance each other, or rather where they unite and compose one accumulated progressive force, which may then be opposed by an equal and opposite external force. If, therefore, the body is not whirling, but at rest on this fixed axis, and if this external force be applied at the centre of percussion, now become a *point of impulse*, a rotation will commence round the fixed axis precisely equal to what had been stopped by this external force, but in the opposite direction; or, if the external force be applied in the direction in which the centre of percussion of the whirling body was moving at the instant of stoppage, the rotation produced by this impulse will be the same in every respect. And we found that in the instant of application of this external force, either to stop or to begin the motion, no pressure whatever was excited on the supports of the axis, and that the axis was, in this instant, a spontaneous axis of conversion. 88

Moreover, we have shown, art. 84, that a rotation round any axis, whether fixed or spontaneous, is equivalent to, or compounded of, a rotation round another axis *parallel to it*, and passing through the centre of gravity, and a progressive motion in the direction of the centre's motion at the instant of impulse.

Now, as the position of the fixed axis, and the known disposition of all the particles of the body with respect to this axis, determines the place of the centre of percussion, and furnishes all the mathematical conditions which must be implemented in its determination, and the direction and magnitude of the force which is produced and exerted at the centre of percussion: so, on the other hand, the knowledge of the magnitude and direction

Rotation.

direction of an external force which is exerted on the point of impulsion of a body not connected with any fixed axis, and of the disposition of all the parts of this body with respect to this point of impulsion, will furnish us with the mathematical circumstances which determine the position of the spontaneous axis of conversion, and therefore determine the position of the axis through the centre (parallel to the spontaneous axis of conversion), round which the body will whirl, while its centre proceeds in the direction of the external force.

89 Mode of determining the axis of progressive rotation the converse of that for determining the centre of percussion.

The process, therefore, for determining the axis of progressive rotation is just the converse of the process for determining the centre of percussion.

John Bernoulli was the first who considered the motion of free bodies impelled by forces whose line of direction did not pass through their centre of gravity; and he takes it for granted, that since the body both advances and turns round an axis passing through the centre of gravity, this axis is perpendicular to the plane passing through the direction of the force, and through the point of impulsion and the centre of gravity. Other authors of the first name, such as Huyghens, Leibnitz, Roberval, &c. have thought themselves obliged to demonstrate this. Their demonstration is as follows:

Let a body whose centre of gravity is G (fig. 11.) be impelled at the point P by a force acting in the direction P Q not passing through the centre. The inertia of the whole body will resist in the same manner as if the whole matter were collected in G, and therefore the resistance will be propagated to the point P in the direction GP. The particle P, therefore, is impelled in the direction P Q, and resisted in the direction P A, and must therefore begin to move in some direction PB, which makes the diagonal of a parallelogram of which the sides have the directions P Q and P A. The diagonal and sides of a parallelogram are in one plane. P is therefore moving in the plane APQB or GPQ, and it is turning round an axis which passes through G.—Therefore this axis *must* be perpendicular to the plane G P Q.

90 It would require a series of difficult propositions to show the fallacy of this reasoning in general terms, and to determine the position of the axis through G. We shall content ourselves with a very simple case, where there can be no hesitation. Let A and B (fig. 12.) be two equal balls connected with the axis $a\,b$ by inflexible lines A a, B b, perpendicular to $a\,b$. Let A a be 1, and B b 2. The centre of gravity G will evidently be in the line cG parallel to A a and B b, and in the middle of $a\,b$, and c G is $1\frac{1}{2}$. Let O be the centre of oscillation. cO is $= \frac{A \,.\, A\,a^2 + B \,.\, B\,b^2}{A + B \,.\, c\,G}, = \frac{5}{3}$.—

Draw A m, B n perpendicular to cG, and suppose the balls transferred to m and n. Their centre of oscillation will be still at O; and we see that if the system in this form were stopped at O, all would be in equilibrio. For the force with which the ball A arrives (by swinging round the axis) at m, is as its quantity of matter and velocity jointly, that is, A . A a, or 1. That of B arriving at n is B . B b, or 2. The arm m O of the lever turning round O is $\frac{2}{3}$, and the arm n O is $\frac{1}{3}$. The forces, therefore, are reciprocally as the arms of the lever on which they act, and their momenta, or powers to turn the line $m\,n$ round O, are equal and opposite, and therefore balance each other; and therefore, at the instant of stopping, no pressure is exerted at c. Therefore, if any impulse is made at O, the balls at m and n will be put in motion with velocities 1 and 2, and c will be a spontaneous centre of conversion. Let us see whether this will be the case when the balls are in their natural places A and B, or whether there will be any tendency to a rotation round the axis cO. The momentum of A, by which it tends to produce a rotation round cO is A . A a . A m, $= 1 \times$ A m. That of B is B.B b . B n, $= 2 \times$ B n. A m and B n are equal, and therefore the momentum of B is double that of A, and there is a tendency of the system to turn round cO; and if, at the instant of stoppage, the supports of the axis ab were removed, this rotation round cO would take place, and the point b would advance, and a would recede, c only remaining at rest. Therefore, if an impulse were made at O, $a\,b$ would not become a spontaneous momentary axis of conversion, and O is not the centre of percussion. This centre must be somewhere in the line OP parallel to $a\,b$, as at P, and so situated that the momenta A . A a . A α and B . B β . B β may be equal, or that A α may be double of B β, or ap double of bp. If an impulse be now made at P, the balls A B will be urged by forces as 1 and 2, and therefore will move as if round the axis $a\,b$, and there will be no pressures produced at a and b, and $a\,b$ will really become a momentary spontaneous axis of conversion.

Now join G and P. Here then it is evident, that a body or system A,B, receiving an impulse at P perpendicular to the plane $a\,c$G, acquires to itself a spontaneous axis of conversion which is not perpendicular to the line joining the point of impression and the centre of gravity. And we have shown, in art. 84. that this motion round $a\,b$ is compounded of a progressive motion of the whole body in the direction of the centre, and a rotation round an axis passing through the centre *parallel to a b*. Therefore, in this system of free bodies, the axis of rotation is not perpendicular to the plane passing through the centre of gravity in the direction of the impelling force.

91 Difficulty of ascertaining its position in general terms.

As we have already observed, it would be a laborious task to ascertain in general terms the position of the progressive axis of rotation. Although the process is the inverse of that for determining the centre of percussion when the axis of rotation is given, it is a most intricate business to convert the steps of this process. The general method is this: The momentum of a particle A (fig. 5.) by which it tends to change the position of the axis D d, has for its factors A α A l, and A λ, which are its distances from three planes D $d\,\delta\,\Delta$, DCO n, and C $g\,\gamma\,\kappa$, given in position. The sum of all these must be equal to nothing, by the compensation of positive and negative quantities. We must find three other planes (of which only one is in some measure determined in position, being perpendicular to DCO n), so situated that the sums of similar products of the distances of the particles from them may in like manner be equal to nothing. This is a very intricate problem; so intricate, that mathematicians have long doubted and disputed about the certainty of the solutions. Euler, d'Alembert, Frisi, Landen, and others, have at last proved, that every body, however irregular its shape, has at least three axes passing through its centre of gravity, round which it will continue to revolve

volve while proceeding forward, and that these are at right angles to each other; and they have given the conditions which must be implemented in the determination of these axes. But they till leave us exceedingly at a loss for means to discover the positions of the axes of a given body which have these conditions.

To solve this problem therefore in general terms, would lead to a disquisition altogether disproportioned to our work. We must restrict ourselves to those forms of body and situations of the point of impulsion which admit of the coincidence of the centres of oscillation and percussion; and we must leave out the cases where the axis has a motion in the direction of its length; that is, we shall always suppose the spontaneous axis of conversion to have no motion. Thus we shall comprehend the phenomena of the planetary motions, similar to the precession of our equinoctial points, and all the interesting cases of practical mechanics. The speculative mathematical reader will fill up the blanks of this investigation by consulting the writings of Euler and D'Alembert in the Berlin Memoirs, Frisi's Cosmographia, and the papers of Mr Landen, Mr Milner, and Mr Vince, in the Philosophical Transactions. But we hope, by means of a beautiful proposition on the composition of rotatory motions, to enable every reader to discover the position of the axis of progressive rotation in every case which may interest him, without the previous solution of the intricate problem mentioned above.

92 Let ABPC $p\,b$ A (fig. 13.) be a section of a body through its centre of gravity G, so formed, that the part ABPC is similar, and similarly placed with the part A $b\,p$ C, so that the plane AC would divide it equally. Let this body be impelled at P in the direction HP, perpendicular to the plane AC. The axis round which it will turn will be perpendicular to G π. Suppose it at A. Then drawing AB and A b to similar points, it is plain that B β, $b\,\beta$ are equal and opposite; these represent the forces which would raise or lower one end of the axis, as has been already observed. The axis therefore will remain perpendicular to G π.

93 Let the body be so shaped, that if the parts to the right and left of the point of impulse π (the impulse is here supposed not *perpendicular* to the plane AC, but *in* this plane) are equal and similarly placed; then the momenta round AC must balance each other, and the axis EF will have no tendency to go out of the plane ABC b A perpendicular to the impulse.

Any body whose shape has these two properties will turn round an axis perpendicular to the plane which passes through the centre of gravity in the direction of the impelling force. This condition is always found in the planets when disturbed by the gravitation to a distant planet: for they are all figures of revolution. The direction of the disturbing or impelling force is always in a plane passing through the axis and the disturbing body.

With such limitations therefore we propose the following problem:

94 Let G (fig. 14.) be the centre of gravity of a body in free space, which is impelled by an external force f, acting in the line FP, which does not pass through the centre. Let m be the number of equal particles in the body, or its quantity of matter. Let the force f be such, that it would communicate to the body the velocity v; that is, would cause the centre to move with the velocity v. It may be expressed by the quantity of motion which it produces, that is, by $m\,v$, and it would produce the velocity $m\,v$ on one particle. It is required to determine the whole motion progressive and rotatory, which it will produce, and the space which it will describe during one turn round its axis. Rotation.

Draw GI parallel and PGC perpendicular to FP, and let GI be taken for the measure of the progressive velocity v.

It has been demonstrated that the centre G will proceed in the direction GI with the velocity v, and that the body will at the same time turn round an axis passing through G, perpendicular to the plane of the figure, every particle describing circles in parallel planes round this axis, and with velocities of rotation proportional to their distances from it. There is therefore a certain distance GB, such that the velocity with which a particle describes its circumference is equal to the progressive velocity v. Let BCD be this circumference. When the particle describing this circumference is in the line CGP, and in that part of it which lies beyond P from G, its absolute velocity must be double that of the centre G; but when it is in the opposite point C, its retrograde velocity being equal to the progressive velocity of the centre, it must be at rest. In every position of the body, therefore, that point of the accompanying circumference which is at this extremity of the perpendicular drawn through the centre on the line of direction of the impelling force is at rest. It is at that instant a spontaneous centre of conversion, and the straight line drawn through it perpendicular to the plane of the figure is then a spontaneous axis of conversion, and every particle is in a momentary state of rotation round this axis, in directions perpendicular to the lines drawn to the axis at right angles, and with velocities proportional to these distances; and lastly, the body advances in the direction GI through a space equal to the circumference BCD, while it makes one turn round G.

Let A be one of the particles in the plane of the figure. Join AC, AG, AP. Draw A b, A c, A d perpendicular to CP, CA, GA. The absolute motion A c of A is compounded of the progressive motion A b common to the whole body and equal to GI, and the motion A d of rotation round the centre of gravity G. Therefore since A b is equal to v, and A c is the diagonal of a parallelogram given both in species and magnitude, it is also given, and (as appears also from the reasoning in art. 85.) it is to GI as CA to CG. 95

By the application of the force $m\,v$ in the direction FP, every particle of the body is dragged out of its place, and exerts a resistance equal to the motion which it acquires. A part of this force, which we may call $m\,v$, is employed in communicating the motion A c to A. Therefore $m\,v$, which we have, and, from what has been lately shown, CG : CA = GI : A c, = v : A c, and therefore A $c = \frac{v.\mathrm{CA}}{\mathrm{CG}}$. But farther (agreeably to what was demonstrated in art. 16.) we have CP : CA = A c : $m\,v$, = $\frac{v.\mathrm{CA}}{\mathrm{CG}}$: $m\,v$, and therefore $m\,v = \frac{v.\mathrm{CA}^2}{}$ 95

Rotation. $\frac{\pi.CA^2}{CG.CP}$. Therefore the whole force employed in communicating to each particle the motion it really acquires, or $m\,v$, is equal to the fluent of the quantity $\frac{v.CA^2}{CP.CG}$ or $m\,v = \frac{v.\int CA^2}{CP.CG}$, and $m.CP.CG = \int CA^2$, which by art. 23. is equal to $\int GA^2 + m.CG^2$. Therefore we have $m.CP.CG - m.CG.CG = \int GA^2$, or $m.GP.CG = \int GA^2$, and finally, $CG = \frac{\int GA^2}{m.GP}$.

Now the form of the body gives us $\int GA^2$, and the position of the impelling force gives us $m.GP$. Therefore we can compute the value of CG; and if π be the periphery of a circle whose radius is unity, we have $\pi.CG$ equal to the space which the body must describe in the direction GI, while it makes one rotation round its axis.

97 *Cor.* 1. The angular velocity, that is, the number of turns or the number of degrees which one of the radii will make in a given time, is proportional to the impelling force: for the length of CG depends only on the form of the body and the situation of the point of impulsion; while the time of describing π times this length is inversely as the force.

98 2. The angular velocity with any given force is as GP: for CG, and consequently the circumference $\pi.CG$, described during one turn, is inversely as GP.

99 3. PC is equal to $\frac{\int PA^2}{m.GP}$: for we have $\int PA^2 = \int GA^2 + m.GP^2$. Therefore $\frac{\int PA^2}{m.GP} = \frac{\int GA^2}{m.GP} + \frac{m.GP^2}{m.GP}, = CG + GP, = CP$.

100 4. If the point C is the centre of impulsion of the same body, P will be a spontaneous centre of conversion (see art. 41).

101 5. A force equal and opposite to $m\,v$, or to f, applied at G, will stop the progressive motion, but will make no change in the rotation; but if it be applied at P, it will stop all motion both progressive and rotatory. If applied between P and G, it will stop the progressive motion, but will leave some motion of rotation. If applied beyond P it will leave a rotation in the opposite direction. If applied beyond G, or between G and C, it will increase the rotation. All this will be easily conceived by reflecting on its effect on the body at rest.

102 6. A whirling body which has no progressive motion cannot have been brought into this state by the action of a single force. It may have been put into this condition by the simultaneous operation of two equal and opposite forces. The equality and opposition of the forces is necessary for stopping all progressive motion. If one of them has acted at the centre, the rotatory motion has been the effect of the other only. If they have acted on opposite sides, they conspired with each other in producing the rotation; but have opposed each other if they acted on opposite sides.

In like manner, it is plain that a motion of rotation, together with a progressive motion of the centre in the direction of the axis, could not have been produced by the action of a single force.

Rotation. 103 7. When the space S which a body describes during one rotation has been observed, we can discover the point of impulse by which a single force may have acted in producing both the motions of progression and rotation: for $CG = \frac{S}{\pi}$, and $GP = \frac{\int GA^2}{m.CG}, = \frac{\pi \int GA^2}{m.S}$.

104 Application of this doctrine to the heavenly motions. In this manner we can tell the distances from the centre at which the sun and planets may have received the single impulses which gave them both their motions of revolution in their orbits and rotation round their axes.

It was found (art. 40. f) that the distance OG of the centre of oscillation or percussion of a sphere swinging round the fixed point C from its centre G, is $\frac{2}{5}$ of the third proportional to CG, and the radius of the sphere, or that $OG = \frac{2}{5}\frac{RG^2}{CG}$. Supposing the planets to be homogeneous and spherical, and calling the radius of the planet r, and the radius of its orbit R, the time of a rotation round its axis t, and the time of a revolution in its orbit T, and making $1 : \pi$ the ratio of radius to the periphery of a circle, we shall have πR for the circumference of the orbit, and $\pi R \frac{t}{T}$ for the arch of this circumference described during one rotation round the axis. This is S in the above-mentioned formula. Then, diminishing this in the ratio of the circumference to radius, we obtain $CG = R\frac{t}{T}$, and $OG = \frac{2}{5}\frac{r^2}{CG}, = \frac{2}{5}\frac{T r^2}{t R}$. This is equivalent to $\frac{\pi \int GA^2}{m.S}$, and easier obtained.

This gives us G v 105

For the Earth	$= \frac{r}{157}$	nearly.
Moon	$\frac{r}{555}$	
Mars	$\frac{r}{195}$	
Jupiter	$\frac{r}{2,8125}$	
Saturn	$\frac{r}{2,588}$	

We have not data for determining this for the sun. But the very circumstance of his having a rotation in $27^d\ 7^h\ 47'$ makes it very probable that he, with all his attending planets, is also moving forward in the celestial spaces, perhaps round some centre of still more general and extensive gravitation: for the perfect opposition and equality of two forces, necessary for giving a rotation without a progressive motion, has the odds against it of infinity to unity. This corroborates the conjectures of philosophers, and the observations of Herschel and other astronomers, who think that the solar system is approaching to that quarter of the heavens in which the constellation Aquila is situated.

8. As in the communication of progressive motion among bodies, the same quantity of motion is preserved before and after collision, so in the communication of rotation

Rotation. tation among whirling bodies the quantity of rotatory momentum is preserved. This appears from the general tenor of our formulæ: for if we suppose a body turning round an axis passing through its centre, without any progressive motion, we must suppose that the force mv, which put it in motion, has been opposed by an equal and opposite force. Let this be supposed to have acted on the centre. Then the whole rotation has been the effect of the other acting at some distance GP from the centre. Its momentum is $mv.GP$. Had it acted alone, it would have produced a rotation compounded with a progressive motion of the centre with the velocity v; and the body acquires a momentary spontaneous axis of conversion at the distance GC from the centre of gravity. The absolute velocity AC of any particle is $\frac{v.AC}{CG}$; its momentum is $\frac{v.AC^2}{GC}$, and the sum of all the momenta is $\frac{\int v.AC^2}{CG}$, or $\frac{v\int AC^2}{CG}$, and this is equal to $mv.GP$. But when the progressive motion is stopped, A b, which was a constituent of the absolute motion of A, is annihilated, and nothing remains but the motion A d of rotation round G. But the triangles dAc and GAC were demonstrated (nº 81.) to be similar; and therefore AC : Ad = CA : GA. Therefore the absolute velocity of the particle, while turning round the quiescent centre of gravity G, is $\frac{v.GA}{GC}$; its momentum is $\frac{v.GA^2}{GC}$; the sum of all the momenta is $\frac{v\int GA^2}{GC}$; and this is still equal to mv. Observe, that now GC is not the distance of the centre of conversion from the centre of gravity, because there is now no such thing as the spontaneous axis of conversion, or rather it coincides with the axis of rotation. GC is the distance from the centre of a particle whose velocity of rotation is equal to v.

Now let the body be changed, either by a new distribution of its parts, or by an addition or abstraction of matter, or by both; and let the same force mv act at the same distance GP from the centre. We shall still have $mv.GP$ $\frac{v\int GA^2}{GC}$; and therefore the sum of the momenta of the particles of the whirling body is still the same, viz. equal to the momentum of the force mv acting by the lever GP. If therefore a free body has been turning round its centre of gravity, and has the distribution of its parts suddenly changed (the centre however remaining in the same place), or has a quantity of matter suddenly added or taken away, it will turn with such an angular velocity that the sum of the momenta is the same as before.

107 Application of the problem of the precession of the equinoxes. We have been so particular on this subject, because it affects the celebrated problem of the precession of the equinoxes; and Sir Isaac Newton's solution of it is erroneous on account of his mistake in this particular. He computes the velocity with which a quantity of matter equal to the excess of the terrestrial spheroid over the inscribed sphere would perform its librations, if detached from the spherical nucleus. He then supposes it suddenly to adhere to the sphere, and to drag it into the same libratory motion; and he computes the libration of the whole mass, upon the supposition that the quantity of motion in the libratory spheroid is the same with the previous quantity of motion of the libratory redundant ring or shell; whereas he should have computed it on the supposition that it was the quantity of momenta that remained unchanged.

The same thing obtains in rotations round fixed axes, as appears by the perfect sameness of the formulæ for both classes of motions.

This law, which, in imitation of the Leibnitzians, we might call the *conservatio momentorum*, makes it of importance to have expressions of the value of the accumulated momenta in such cases as most frequently occur. The most frequent is that of a sphere or spheroid in rotation round an axis or an equatorial diameter; and a knowledge of it is necessary for the solution of the problem of the precession of the equinoxes. See PRECESSION, nº 33.

108 Let APap (fig. 15.) be a sphere turning round the diameter Pp, and let DD′, dd' be two circles parallel to the equator Aa, very near each other, comprehending between them an elementary slice of the sphere. Let CA be $= a$, CB $= x$, and BD $= y$, and let π be the circumference of a circle whose radius is 1. Lastly, let the velocity of the point A be v. Then

$v\frac{y}{a}$ is the velocity at the distance y from the axis, πy is the quantity of matter in the circumference whose radius is y; for it is the length of that circumference when expanded.

$\frac{v\pi y^2}{a}$, or $\frac{vy}{a}\times\pi y$, is the quantity of motion in this circumference turning round the axis Pp.

$\frac{v\pi y^3}{a}$ is the momentum of the same circumference.

$\frac{v\pi y^3\dot{y}}{a}$ is the fluxion of the momentum of the circle whose radius is y, turning in its own plane round the axis.

$\frac{v\pi y^4}{4a}$ is the fluent, or the momentum of the whole circle; and therefore it is the momentum of the circle DD′.

$\frac{v\pi y^4\dot{x}}{4a}$ is the fluxion of the momentum of the hemisphere; for B$b = \dot{x}$, and this fraction is the momentum of the slice dDD′d'.

$y^2 = a^2 - x^2$ and $y^4 = a^4 - 2a^2x^2 + x^4$. Therefore $\frac{v\pi}{2a}\times(a^4\dot{x} - 2a^2x^2\dot{x} + x^4\dot{x})$ is the fluxion of the momentum of the whole sphere. Of this the fluent for the segments whose heights are CB, or x, is $\frac{v\pi}{2a}$ $(a^4x - \frac{2a^2x^3}{3} + \frac{x^5}{5})$.

Let x become a, and we have for the momentum of the whole sphere $\frac{v\pi}{2a}(a^5 - \frac{2}{3}a^5 + \frac{1}{5}a^5) = v\cdot(\frac{a^3}{2} - \frac{a^4}{3} + \frac{a^4}{10}) = v\pi\frac{1}{15}a^4$.

109 Let us suppose that this rotation has been produced by the action of a force mu; that is, a force which would communicate the velocity u to the whole matter of

Rotation. of the sphere, had it acted in a direction passing through its centre; and let us suppose that this force acted on the equatorial point A at right angles to AC: Its momentum is $m u a$, and this is equal to $v \pi \frac{4}{15} a^4$. Also, we know that $m = \frac{2}{3} \pi a^3$. Therefore we have $u \cdot \frac{2}{3} \pi a^4 = v \frac{4}{15} \pi a^4$, $\frac{2}{3} u = \frac{4}{15} v$, and $v = \frac{5}{2} u$.

110 Let EPQ p be an oblate spheroid whose semi-axis PC is a, and equatorial radius EC is b, and let v be the velocity on the equator of the inscribed sphere. Then since the momentum of the whirling circle DD is $\frac{v \pi y^4}{4a}$, the momenta of the sphere and spheroid are in the quadruplicate ratio of their equatorial radii; and therefore that of the whole spheroid is $\frac{4}{15} \cdot b^4 v$. And if w be the velocity at E corresponding to the velocity v at A, so that $w = \frac{b}{a} v$, we have the momentum of the spheroid, expressed in terms of the equatorial velocity at the surface, $\frac{4}{15} b^3 a w$

111 If the same force $m u$ be made to act in the same manner at E, its momentum $m u b$ is $= \frac{4}{15} b^3 a w$, and $w = \frac{15}{4} \frac{m u}{\pi b^3 a}$. Therefore the angular velocities $\frac{v}{a}$, $\frac{w}{b}$, which the same force mu acting at A or E will produce in the sphere and the spheroid, are as $\frac{15 m u}{4 \pi a^4}$ and $\frac{15 m u}{4 \pi b^3 a}$, that is, in the triplicate ratio of the equatorial diameter b to the polar axis a.

112 Lastly, if the oblate spheroid is made to turn round an equatorial diameter passing through C perpendicular to the plane of the figure, it is plain that every section parallel to the meridian EPQ p is an ellipse similar to this meridian. If this ellipse differs very little from the inscribed circle, as is the case of the earth in the problem of the precession of the equinoxes, the momentum of each ellipse may be considered as equal to that of a circle of the same area, or whose diameter is a mean proportional between the equatorial and polar diameters of the spheroid. This radius is to the radius of the circumscribed circle as $\sqrt{ba}$ to b. Therefore the momenta of the section of the spheroid and of the circumscribed sphere are in the constant ratio of $b^2 a^2$ to b^4, or of a^2 to b^2. And if the velocity in the equator of this circumscribed sphere be called w, the momentum of the sphere is $\frac{4}{15} \pi b^4 w$; and therefore that of the spheroid is $\frac{4}{15} \pi b^2 a^2 w$, agreeably to what was assumed in the article PRECESSION, n° 33.

This value of the momentum of a spheroid round an equatorial diameter is only a very easy approximation; an exact value may be obtained by an infinite series. The whole matter of the spheroid may be considered as uniformly distributed on the surface of a similar spheroid whose diameter is $= \sqrt{\frac{1}{5}}$ of the diameter of the spheroid. It will have the same momentum, because a triangle in one of the ellipses, having an elementary arch of the circumference for its base, and the centre of the ellipse for its vertex, has its centre of gyration distant from the vertex $\sqrt{\frac{1}{5}}$ the length of the radius of the ellipse, and the problem is reduced to the finding the sum of these lines. But even when the series for this sum involves the 3d power of the eccentricity, it is not more exact than the above approximation.

A similar proposition may be obtained for a prolate spheroid vibrating round an equatorial diameter, and applied to the conjectural shape of the moon, for explaining her oscillations.

The reader must have observed that the preceding disquisitions refer to those motions only which result from the action of external forces and to the state of incipient motion. All circular motions, such as those of rotation, are accompanied by centrifugal forces. A central force is necessary for retaining every particle in its circular path; such forces must therefore be excited in the body, and can arise only from the forces of cohesion by which its particles are held together. These forces are mutual, equal, and opposite; and as much as a particle A (fig. 5.) is retained by a force in the direction A a of the line which connects it with the fixed axis D d, or in the direction AG (fig. 10.), which connects it with the progressive axis; so much must the point a of the axis D d be urged in the opposite direction a A, or so much must the whole body be urged in the direction GA. Every point therefore of the axis D d, or of the axis through G in fig. 10. is carried in a variety of directions perpendicular to itself. These forces may or may not balance each other. If this balance obtains with respect to the fixed axis, its supports will sustain no pressure but what arises from the external force; if not, one support will be more pressed than the other; and if both were removed, the axis would change its position. The same must be affirmed of the axis through G in fig. 10. This, having no support, must change its position.

113 All rotatory motions accompanied by centrifugal forces.

114 And thus it may happen, that the axis of rotation passing through G which has been determined by the preceding disquisitions, is not permanent either in respect of the body, or in respect of absolute space. These two rotations are essentially different. The way to conceive both is this. Suppose a spherical surface described round the body, having its centre in the centre of gravity; and suppose this surface to revolve and to proceed forward along with the body: in short, let it be conceived as an immaterial surface attached to the body. The axis of rotation will pass through this surface in two points which we shall call its poles. Now, we say that the axis is permanent with respect to the body when it has always the same poles in this spherical surface. Suppose another spherical surface described round the same centre, and that this surface also accompanies the body in all its progressive motion, but does not turn with it. The axis is permanent with respect to absolute space when it has always the same poles in this surface: it is evident that these two facts are not inseparable. A boy's top spins on the same point and the same corporeal axis, while, towards the end of its motion, we observe it directing this round and round to different quarters of the room. And when we make an egg or a lemon spin with great rapidity on its side on a level table, we see it gradually rise up, till it stand quite on end, spinning all the while round an axis pointing to the zenith.

115 This change in the position of the axis is produced by the unbalanced actions of the centrifugal forces exerted by the particles. Suppose two equal balls A and B (fig. 16.) connected by an inflexible rod whose middle point is G, the centre of gravity of the balls. This system may be made to turn round the material axis D d, A describing the circle AEFA, and B describing the circle BHKB. The rod AB may also be conceived

Rotation. as moveable round the point G by means of a pin at right angles to the axis. Suppose the balls passing through the situations A and B; their centrifugal forces urge them at the same time in the directions CA and OB, which impulsions conspire to make the connecting rod recede from both ends of the axis D *d*. And thus the balls, instead of describing parallel circles round this axis, will describe parallel spirals, gradually opening the angles DGA, *d* GB more and more, till the balls acquire the position $\alpha\beta$ at right angles to the axis. They will not stop there, for each came into that position with an oblique motion. They will pass it; and were it not for the resistance of the air and the friction of the joint at G, they would go on till the ball A came to describe the circle BHK, and the ball B to describe the circle AEF. The centrifugal forces will now have exhausted by opposition all the motions which they had acquired during their passage from the position AB to the position $\alpha\beta$; and now they will again describe spirals gradually opening, and then contracting, till the balls arrive at their original position AB, when the process will begin again. Thus they will continue a kind of oscillating rotation.

116 Thus the axis is continually changing with respect to the system of balls; but it is fixed in respect to absolute space, because the axis D *d* is supported. It does not yet appear that it has any tendency to change its position, because the centrifugal tendency of the balls is completely yielded to by the joint at G. The material axis has indeed sustained no change; but the real axis, or mathematical line round which the rotation was going on every moment, has been continually shifting its place. This is not so obvious, and requires a more attentive consideration. To show accurately the gradual change of position of the real axis of rotation would require a long discussion. We shall content ourselves with exhibiting a case where the position of the momentary axis is unquestionably different from D *d*, which we may suppose horizontal.

Take the balls in the position $\alpha\beta$. They came into this position with a spiral motion, and therefore each of them was moving obliquely to the tangents $\alpha\varphi$ $\beta\gamma$ to the circle $\alpha\delta\beta\epsilon$ suppose in the directions $\alpha\theta$ $\beta\lambda$. They are therefore moving round the centre G in a plane $\theta\alpha\beta\lambda$, inclined to the plane $\varphi\alpha\beta\gamma$ of the circle $\alpha\delta\beta\epsilon$. The momentary axis of rotation is therefore perpendicular to this oblique plane, and therefore does not coincide with D *d*.

117 Of the evagation of the axis. We cannot enter upon the investigation of this evagation of the axis, although the subject is both curious and important to the speculative mathematicians. A knowledge of it is absolutely necessary to a *complete* solution of the great problem of the precession. But when treating that article, we contented ourselves with showing that the evagation which obtains in this natural phenomenon is so exceedingly minute, that although multiplied many thousands of times, it would escape the nicest observations of modern astronomers; and that it is a thing which does not accumulate beyond a certain limit, much too small for observation, and then diminishes again, and is periodical. Euler, D'Alembert, Frisi, and De la Grange, have shown the momentary position of the real variable axis corresponding to any given time; and Landen has with great ingenuity and elegance connected these momentary positions, and given the whole paths of evagation. Mr Segnor was, we believe, the first who showed (in a Dissertation *De Motu Turbinum*, Halle, 1755), that in every body there were at least three lines passing through the centre of gravity at right angles to each other, forming the solid angle of a cube, round which the centrifugal forces were accurately balanced, and therefore a rotation begun round either of these three lines would be continued, and they are permanent axes of rotation. Albert Euler gave the first demonstration in 1760, and since that time the investigation of these axes has been extended and improved by the different authors already named. It is an exceedingly difficult subject; and we recommend the synthetical investigation by Frisi in his *Cosmographia* as the fittest for instructing a curious reader to whom the subject is new. We shall conclude this dissertation with a beautiful theorem, the enunciation of which we owe to P. Frisi, which has amazingly improved the whole theory, and gives easy and elegant solutions of the most difficult problems. It is analogous to the great theorem of the composition of motions and forces.

118 P. Frisi's theorem. If a body turns round an axis AG*a* (fig. 17.) passing through its centre of gravity G with the angular velocity *a*, while this axis is carried round another axis BG*b* with the angular velocity *b*, and if GD be taken to GK as *a* to *b* (the points B and E being taken on that side of the centre where they are moving towards the same side of the plane of the figure), and the line DE be drawn, though the whole and every particle of the body will be in a state of rotation round a third axis CG*c*, lying in the plane of the other two, and parallel to DE, and the angular velocity round this axis will be to *a* and to *b* as DE is to GD and to GE.

For, let P be any particle of the body, and suppose a spherical surface to be described round G passing through P. Draw PR perpendicular to the plane of the figure. It is evident that PR is the common section of the circle of rotation IP*i* round the axis A*a*, and the circle KP*k* of rotation round the axis B*b*. Let I*i*, K*k* be the diameters of these circles of rotation, F and G their centres. Draw the radii PF and PO, and the tangents PM and PN. These tangents are in a plane MPN which touches the sphere in P, and cuts the plane of the axis in a line MN, to which a line drawn from the centre G of the sphere through the point R is perpendicular. Let PN represent the velocity of rotation of the point P round the axis B*b*, and P*f* its velocity of rotation round A*a*. Complete the parallelogram PN . Then P. is the direction and velocity of motion resulting from the composition of PN and P*f*. P is in the plane MPN, because the diagonal of a parallelogram is in the plane of its sides PN and P*f*.

Let perpendiculars *f*F, *t*T, be drawn to the plane of the axes, and the parallelogram PN*f* will be orthographically projected on that plane, its projection being a parallelogram RNTF. (F here falls on the centre by accident). Draw the diagonal RT. It is evident that the plane PR*t*T is perpendicular to the plane of the two axes, because PR is so. Therefore the compound motion P*t* is in the plane of a circle of revolution round some axis situated in the plane of the other two. Therefore produce TR, and draw GC cutting it at right angles

Rotation.

angles in H, and let LPl be the circle, and PH a radius. Pt is therefore a tangent, and perpendicular to PH, and will meet RT in some point Q of the line MN. The particle P is in a state of rotation round the axis CGc, and its velocity is to the velocities round Aa or Bb as Pt to Pf or PN. The triangles PRN and OPN are similar. For PN the tangent is perpendicular to the radius OP, and PR is perpendicular to ON. Therefore OP : PN = PR : RN, and RN = $\frac{PR.PN}{OP}$. But the velocity of P round the axis Bb is OP.b. Therefore RN = $\frac{PR.OP.b}{OP}$, = PR.b. In like manner RF = PR.a. Therefore RF : RN = a : b = GD : GE. But NT : RN = sine NRT : sine NTR, and GD : GE = sine GED : sine GDE. Therefore sine NRT : sine NTR = sine GED : sine GDE. But RNT = EGD, for NR is perpendicular to EG and NT (being parallel to IF) is perpendicular to DG. Therefore TR is perpendicular to ED, and Cc is parallel to ED, and the rotation of the particle P is round an axis parallel to ED.

And since RN, RF, RT, are as the velocities b, a, c, round these different axes, and are proportional to EG, DG, DE, we have c to a or to b as ED to GD or GE, and the proposition is demonstrated.

This theorem may be thus expressed in general terms.

119 Expressed in general terms.

If a body revolves round an axis passing through its centre of gravity with the angular velocity a, while this axis is carried round another axis, also passing through its centre of gravity, with the angular velocity b, these two motions compose a motion of every particle of the body round a third axis, lying in the plane of the other two, and inclined to each of the former axes in angles whose sines are inversely as the angular velocities round them; and the angular velocity round this new axis is to that round one of the primitive axes as the sine of inclination of the two primitive axes is to the sine of the inclination of the new axis to the other primitive axis.

When we say that we owe the enunciation of this theorem to P. Frisi, we grant at the same time that something like it has been supposed or assumed by other authors. Newton seems to have considered it as true, and even evident, in homogeneous spheres; and this has been tacitly acquiesced in by the authors who followed him in the problem of the precession. Inferior writers have carelessly assumed it as a truth. Thus Nollet, Gravesande, and others, in their contrivances for exhibiting experiments for illustrating the composition of vortices, proceeded on this assumption. Even authors of more scrupulous research have satisfied themselves with a very imperfect proof. Thus Mr Landen, in his excellent dissertation on rotatory motion, Philosophical Transactions, Vol. LXVII. contents himself with showing, that, by the equality and opposite directions of the motions round the axes Aa and Bb, the point C will be at rest, and from thence concludes that CGc will be the new axis of rotation. But this is exceedingly hasty (note also, that this dissertation was many years posterior to that of P. Frisi): For although the separate motions of the point C may be equal and opposite, it is by no means either a mathematical or a mechanical consequence that the body will turn round the axis Cc. In order that the point C may remain at rest, it is necessary that all tendencies to motion be annihilated: this is not even thought of in making the assumption. Frisi has shown, that in the motion of every particle round the axis Cc, there is involved a motion round the two axes Aa and Bb, with the velocities a and b; and it is a consequence of this, and of this only, that the impulses which would separately produce the rotations of every particle round Aa and Bb will, either in succession or in conjunction, produce a rotation round Cc. Moreover, Mr Landen's not having attended to this, has led him, as we imagine, into a mistake respecting the velocity with which the axis changes its position; and though his process exhibits the path of evagation with accuracy, we apprehend that it does not assign the true times of the axes arriving at particular points of this path.

120 Conclusion deduced from this proposition.

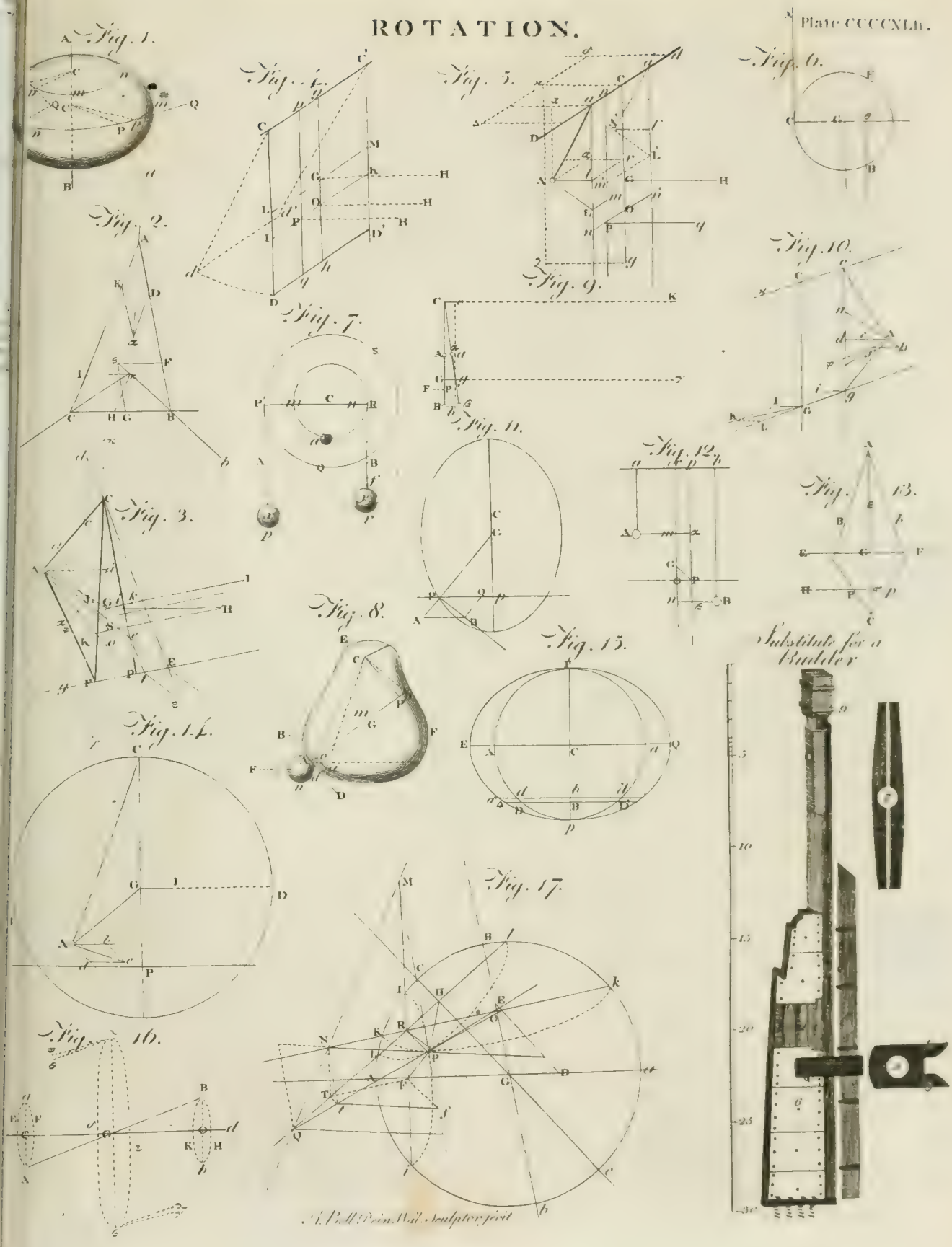
It follows from this proposition, that if every particle of a body, whether solid or fluid, receives in one instant a separate impulse, competent to the production of a motion of the particle round an axis with a certain angular velocity, and another impulse competent to the production of a motion round another axis with a certain velocity, the combined effect of all these impulsions will be a motion of the whole system round a third axis given in position, with an angular velocity which is also given: and this motion will obtain without any separation or disunion of parts; for we see that a motion round two axes constitute a motion round a third axis in every particle, and no separation would take place although the system were incoherent like a mass of sand, except by the action of the centrifugal forces arising from rotation. Mr Simpson therefore erred in his solution of the problem of the precession, by supposing another force necessary for enabling the particles of the fluid spheroid to accompany the equator when displaced from its former situation. The very force which makes the displacement produces the accompaniment, as far as it obtains, which we shall see presently is not to the extent that Mr Simpson and other authors who treat this problem have supposed.

121 For the same reason, if a body be turning round any axis, and every particle in one instant get an impulse precisely such as is competent to produce a given angular velocity round another axis, the body will turn round a third axis given in position, with a given angular velocity: for it is indifferent (as it is in the ordinary composition of motion) whether the forces act on a particle at once or in succession. The final motion is the same both in respect of direction and velocity.

122 Lastly, when a rigid body acquires a rotation round an axis by the action of an impulse on one part of it, and at the same time, or afterwards, gets an impulse on any part which, alone, would have produced a certain rotation round another axis, the effect of the combined actions will be a rotation round a third axis, in terms of this proposition; for when a rigid body acquires a motion round an axis, not by the simultaneous impulse of the precisely competent force on each particle, but by an impulse on one part, *there has been propagated to every particle* (by means of the connecting forces) an impulse precisely competent to produce the motion which the particle really acquires; and when a rigid body, already

ROTATION.

Plate CCCCXLII.



ion. ready turning round an axis A *a* (fig. 17.), receives an impulse which makes it actually turn round another axis C *c*, there *has been propagated to each particle* a force precisely competent to produce, not the motion, but the *change* of motion which takes place in that particle, that is, a force which, when compounded with the inherent force of its primitive motion, produces the new motion; that is (by this theorem), a force which alone would have caused it to turn round a third axis B *b*, with a rotation making the other constituent of the actual rotation round C *c*.

123 This must be considered as one of the most important propositions in dynamics, and gives a great extension to the doctrine of the composition of motion. We see that rotations are compounded in the same manner as other motions, and it is extremely easy to discover the composition. We have only to suppose a sphere described round the centre of the body; and the equator of this sphere corresponding to any primitive position of the axis of rotation gives us the direction and velocity of the particles situated in it. Let another great circle cut this equator in any point; it will be the equator of another rotation. Set off an arch of each from the point of intersection, proportional to the angular velocity of each rotation, and complete the spherical parallelogram. The great circle, which is the diagonal of this parallelogram, will be the equator of the rotation, which is actually compounded of the other two.

124 And thus may any two rotations be compounded. We have given an instance of this in the solution of the problem of the *Precession of the Equinoxes*, Vol. XV. p. 463.

125 It appears plainly in the demonstration of this theorem that the axis C *c* is a new line in the body. The change of rotation is not accomplished by a transference of the poles and equator of the former rotation to a new situation, in which they are again the poles and equator of the rotation; for we see that in the rotation round the axis C *c*, the particle of the body which was formerly the pole A is describing a circle round the axis C *c*. Not knowing this composition of rotations, Newton, Walmesly, Simpson, and other celebrated mathematicians, imagined, that the axis of the earth's rotation remained the same, but changed its position. In this they were confirmed by the constancy of the observed latitudes of places on the surface of the earth. But the axis of the earth's rotation really changes its place, and the poles shift through different points of its surface; but these different points are too near each other to make the change sensible to the nicest observation.

126 Reflecting the position of the axis of rotation. It would seem to result from these observations, that it is impossible that the axis of rotation can change its position in absolute space without changing its position in the body, contrary to what we experience in a thousand familiar instances; and indeed this is impossible by any one change. We cannot by the impulse of any one force make a body which is turning round the axis A *a* change its position and turn round the same material axis brought into the position C *c*. In the same way that a body must pass through a series of intermediate points, in going from one end of a line to the other, so it must acquire an infinite series of intermediate rotations (each of them momentary) before the same material axis passes into another position, so as to become an axis of rotation. A momentary impulse may make a great change of the position of the axis of rotation, as it may make in the velocity of a rectilineal motion. Thus although the rotation round A *a* be indefinitely small, if another equally small rotation be impressed round an axis B *b* perpendicular to A *a*, the axis will at once shift to C half way between them; but a succession of rotations is necessary for carrying the primitive material axis into a new position, where it is again an axis. This transference, however, is possible, but gradual, and must be accomplished by a *continuation* of impulses totally different from what we would at first suppose. In order that A may pass from A to C, it is not enough that it gets an impulse in the direction AC. Such an impulse would carry it thither, if the body had not been whirling round A *a* by the mere perseverance of matter in its state of motion; but when the body is already whirling round A *a*, the particles in the circle IP *i* are moving in the circumference of that circle; and since that circle also partakes of the motion given to A, every particle in it must be *instantly* deflected from the path in which it is moving. The *continual* agency of a force is therefore necessary for this purpose; and if this force be discontinued, the point A will immediately quit the plane of the arch AC, along which we are endeavouring to move it, and will start up.

127 This is the theorem which we formerly said would enable us to overcome the difficulties in the investigation of the axis of rotation.

128 The evagations of the poles of rotation by the action of centrifugal forces. Thus we can discover what Mr Landen calls the evagations of the poles of rotation by the action of centrifugal forces: For in fig. 16. the known velocity of the ball A and the radius AC of its circle of rotation will give us the centrifugal force by which the balls *tend* to turn in the plane D A *d* B D. This gives the axis D *d* a tendency to move in a plane perpendicular to the plane of the figure; and its separation from the poles D and *d* does not depend on the separation of the connecting rod A B from its present inclination to D *d*, but on the angle which the spiral path of the ball makes with the plane of a circle of rotation round D *d*. The distance of the new poles from D and *d* is an arch of a circle which measures the angle made by the spiral with the circle of rotation round the primitive axis. This will gradually increase, and the mathematical axis of rotation will be describing a spiral round D and *d*, gradually separating from these points, and again approaching them, and coinciding with them again, at the time that the balls themselves are most of all removed from their primitive situation, namely, when A is in the place of B.

129 Axis of incipient rotation in complicated cases. The same theorem also enables us to find the incipient axis of rotation in the complicated cases which are almost inaccessible by means of the elementary principles of rotation.

130 Thus, when the centres of oscillation and percussion do not coincide, as we supposed in fig. 5. and 12. Suppose, first, that they do coincide, and find the position of the axis *a b*, and the angular velocity of the rotation. Then find the centre of percussion, the axis P *p*, and the momentum round it, and the angular velocity which this momentum would produce. Thus we have obtained two rotations round given axes, and with given angular velocities. Compound these rotations by this theorem, and we obtain the required position of the

Rotation. true incipient axis of rotation, and the angular velocity, without the intricate process which would otherwise have been necessary.

131 If the body is of such a shape, that the forces in the plane DCG do not balance each other, we shall then discover a momentum round an axis perpendicular to this plane. Compound this rotation in the same manner with the rotation round D *d*.

132 Position of the axis when the centres of percussion and rotation do not coincide. And from this simple view of the matter we learn (what would be difficult to discover in the other way), that when the centre of percussion does not coincide with that of rotation, the axis is in the plane DGC, though not perpendicular to PG. But when there is a momentum round an axis perpendicular to this plane, the incipient axis of rotation is neither perpendicular to PC, nor in a plane perpendicular to that passing through the centre in the direction of the impelling force.

We must content ourselves with merely pointing out these tracks of investigation to the curious reader, and recommending the cultivation of this most fruitful theorem of Father Frisi.

133 Concluding remarks on seamanship. These are by no means speculations of mere curiosity, interesting to none but mathematicians: the noblest art which is practised by man must receive great improvement from a complete knowledge of this subject. We mean the art of SEAMANSHIP. A ship, the most admirable of machines, must be considered as a body in free space, impelled by the winds and waters, and continually moved round spontaneous axes of conversion, and incessantly checked in these movements. The trimming of the sails, the action of the rudder, the very disposition of the loading, all affect her versatility. An experienced seaman knows by habit how to produce and facilitate these motions, and to check or stop such as are inconvenient. Experience, without any reflection or knowledge how and why, informs him what position of the rudder produces a deviation from the course. A sort of common sense tells him, that, in order to make the ship turn her head away from the wind, he must increase the surface or the obliquity of the head sails, and diminish the power of the sails near the stern. A few other operations are dictated to him by this kind of common sense; but few, even of old seamen, can tell why a ship has such a tendency to bring her head up in the wind, and why it is so necessary to crowd the fore part of the ship with sails; fewer still know that a certain shifting of the loading will facilitate some motions in different cases; that the crew of a great ship running suddenly to a particular place shall enable the ship to accomplish a movement in a stormy sea which could not be done otherwise; and perhaps not one in ten thousand can tell why this procedure will be successful. But the mathematical inquirer will see all this; and it would be a most valuable acquisition to the public, to have a manual of such propositions, deduced from a careful and judicious consideration of the circumstances, and freed from that great complication and intricacy which only the learned can unravel, and expressed in a familiar manner, clothed with such reasoning as will be intelligible to the unlearned; and though not accurate, yet persuasive. Mr Bouguer, in his *Traité du Navire*, and in his *Manœuvre des Vaisseaux*, has delivered a great deal of useful information on this subject; and Mr Bezout has made a very useful abstract of these works in his *Cours de Mathematique*. But the subject is left by them in a form far too abstruse to be of any general use: and it is unfortunately so combined with or founded on a false theory of the action and resistance of fluids, that many of the propositions are totally inconsistent with experience, and many maxims of seamanship are false. This has occasioned these doctrines to be neglected altogether. Few of our professional seamen have the preparatory knowledge necessary for improving the science; but it would be a work of immense utility, and would acquire great reputation to the person who successfully prosecutes it.

We shall mention under the article SEAMANSHIP the chief problems, and point out the mechanical principles by which they may be solved.

ROTHERAM, a town in the West Riding of Yorkshire, seated on the river Don, near which there is a handsome stone-bridge. It is a well-built place, and the market is large for provisions. W. Long. 1. 10. N. Lat. 53. 25.

ROTHSAY, a town in the isle of Bute, of which it is the capital. It is a well-built town of small houses, and about 200 families; and is within these few years much improved. It has a good pier, and is seated at the bottom of a fine bay, whose mouth lies exactly opposite to Loch Steven in Cowal. Here is a fine depth of water, a secure retreat, and a ready navigation down the Frith for an export trade. Magazines of goods for foreign parts might be most advantageously erected here. The women of this town spin yarn, the men support themselves by fishing. W. Long. 5. 0. N. Lat. 55. 50.

Rothsay gives the title of Duke to the prince of Scotland, a title which was formerly accompanied with suitable revenues, powers, and privileges. Of the origin of this title we have the following account from the pen of the learned Dr M'Leod of Glasgow. Some time between the 16th of March and the 26th of October 1398, John of Gaunt, who is styled John duke of Aquitaine and Lancaster, uncle to the king of England, and David, who is styled earl of Carrick, eldest son of the king of Scotland, met for the purpose of settling the borders, and terminating all matters in dispute. At a subsequent interview between the same parties, David is styled Duke of Rothsay. "This innovation probably proceeded on an idea, to which the interview of the two princes might naturally give rise, that it was unsuitable, and unworthy of the Scottish national dignity, that the princes of England should enjoy a title of nobility, which was esteemed to be of higher rank than that possessed by the hereditary prince of Scotland." And this, in the opinion of our author, was the occasion of introducing the title of Duke into Scotland.

ROTTBŒLLIA, in botany; a genus of the digynia order, belonging to the triandria class of plants. The rachis is jointed, roundish, and in many cases filiform; the calyx is ovate, lanceolated, flat, simple, or bipartite; the florets are alternate on the winding rachis.

ROTONDO, or ROTUNDO, in architecture, an appellation given to any building that is round both within and without; whether it be a church, a saloon, or the like. The most celebrated rotundo of the ancients is the pantheon at Rome. See PANTHEON.

ROTTEN-STONE, a mineral found in Derbyshire, and

nefs. and used by mechanics for all sorts of finer grinding
dam. and polishing, and sometimes for cutting of stones. According to Ferber, it is a tripoli mixed with calcareous earth.

ROTTENNESS. See PUTREFACTION.

ROTTERDAM, is a city in the province of Holland, in E. Long. 4. 20 N Lat. 52. situated on the north bank of the river Maese, about 37 miles south of Amsterdam, nine south-east of the Hague, and 15 to the eastward of Briel. It is a large and populous city, of a triangular figure, handsomely built of brick, the streets wide and well paved. There are ten gates to the town, six of which are at the land side and four at the side of the Maese. It is supposed to take its name from the *Roter*, or *Rotter*, a little river that falls into the canals of this city, and from *Dam*, a dike. It is uncertain when it was first built; and though it is supposed to be very ancient, yet we find no mention made of it before the 13th century. In the year 1270 it was surrounded with ramparts, and honoured with several privileges; but 27 years after it was taken by the Flemings. In the year 1418, Brederode chief of the Haeks made himself master of it; since which time it has continued yearly to increase by means of the conveniency of its harbour. Its arms are vert, a pale argent, quarterly in a chief on the first and third, or, a lion spotted sable, on the second and fourth a lion spotted gules.

Rotterdam is not reckoned one of the principal cities of the province, because it has not been always in its present flourishing condition. The Dutch call it the first of the second rank, whereas it ought to be esteemed the second of the first, being, next to Amsterdam, the most trading town in the United Provinces. Its port is very commodious; for the canals, which run through most parts of the town, bring the ships, some of 200 or 300 ton, up to the merchants door; a conveniency for loading and unloading which is not to be found in other places. The great ships go up into the middle of the town by the canal into which the Maese enters by the old head, as it comes out by the new. A stranger, upon his first entering this place, is astonished at the beautiful confusion of chimneys intermixed with tops of trees with which the canals are planted, and streamers of vessels; insomuch that he can hardly tell whether it be fleet, city, or forest. The Harring Vliet is a very fine street; most of the houses are new, and built of hewn stone; but the grandest as well as most agreeable street in Rotterdam is the Bomb Quay, which lies parallel with the Maese; on one side it is open to the river, and the other is ornamented with a grand facade of the best houses in the city, inhabited chiefly by the English; they are five or six stories high, massy and very clumsy: wherever there is any attempt at ornament, it is the worst that can be conceived. One sees no Grecian architecture, except Doric entablatures, stuck upon the top of the upper story, without pilasters; Ionic volutes, turned often the wrong way, and an attempt at Corinthian capitals, without any other part of the order. The doors are large, and stuck with great knobs and clumsy carving; you ascend to them, not in front, but by three or four steps going up on each side, and you are assisted by iron rails of a most immense thickness. These houses are almost all window; and the window shutters and frames being painted green, the glass has all a green cast, which is helped by the reflection from the trees that overshadow their houses, which, were it not for this circumstance, would be intolerably hot, from their vicinity to the canals. Most of the houses have looking-glasses placed on the outsides of the windows, on both sides, in order that they may see every thing which passes up and down the street. The stair-cases are narrow, steep, and come down almost to the door. In general, the houses rise with enormous steep roofs, turning the gable end to the street, and leaning considerably forward, so that the top often projects near two feet beyond the perpendicular. The Bomb Quay is so broad, that there are distinct walks for carriages and foot-passengers, lined and shaded with a double row of trees.—You look over the river on some beautiful meadows, and a fine avenue of trees, which leads to the Pest-house: it seems to be an elegant building, and the trees round it are so disposed as to appear a thick wood. This street is at least half a mile in length, and extends from the old to the new head, the two places where the water enters to fill the canals of this extensive city. When water runs through a street, it then assumes the name of a canal, of which kind the Heeren-fleet has the pre-eminence; the houses are of free-stone, and very lofty; the canal is spacious, and covered with ships: at one end stands the English church, a neat pretty building, of which the bishop of London is ordinary.

eckam's our thro' Holland, c.

This port is much more frequented by the British merchants than Amsterdam, insomuch that, after a frost, when the sea is open, sometimes 300 sail of British vessels sail out of the harbour at once. There is always a large number of British subjects who reside in this town, and live much in the same manner as in Great Britain. The reason of the great traffic between this place and England, is because the ships can generally load and unload, and return to England from Rotterdam, before a ship can get clear from Amsterdam and the Texel. Hence the English merchants find it cheaper and more commodious, after their goods are arrived at Rotterdam, to send them in boats over the canals to Amsterdam. Another great advantage they have here for commerce is, that the Maese is open, and the passage free from ice, much sooner in the spring than in the Y and Zuyder-sea, which lead to Amsterdam.

The glass-house here is one of the best in the seven provinces; it makes abundance of glass-toys and enamelled bowls, which are sent to India, and exchanged for china-ware, and other oriental commodities.

The college of admiralty here is called the *college of the Maese*, the chief of all Holland and the United Provinces. The lieutenant-general, admiral of Holland, is obliged to go on board of a Rotterdam ship in the Maese when he goes to sea, and then he commands the squadron of the Maese.

On the east side of the city there is a large bason and dock, where ship-carpenters are continually employed for the use of the admiralty, or of the East India company. But the largest ships belonging to the admiralty of Rotterdam are kept at Helvoetsluys, as the most commodious station, that place being situated on the ocean; for it requires both time and trouble to work a large ship from the dock of Rotterdam to the sea.

Rotterdam has four Dutch churches for the established religion. There is one thing very remarkable in

in respect to the great church, that the tower which leaned on one side was set up straight in the year 1655, as appears by the inscription engraved on brass at the bottom of the tower withinside. In the choir of this church are celebrated, with no small solemnity, the promotions made in the Latin schools. Besides, there are two English churches, one for those of the church of England and the other for the Presbyterians; and one Scotch church; as likewise one Lutheran, two Arminian, two Anabaptist, four Roman Catholic chapels, and one Jewish synagogue.

Though the public buildings here are not so stately as those of Amsterdam and some other cities, yet there are several of them well worth seeing. The great church of St Laurence is a good old building, where are many stately monuments of their old admirals. From the top of this church one may see the Hague, Delft, Leyden, Dort, and most of the towns of south Holland. There are several fine market-places, as three fish-markets, the great market, the new-market, and the hogs-market. The Stadthouse is an old building, but the chambers large and finely adorned. The magazines for fitting out their ships are very good structures. The Exchange is a noble building, begun in the year 1720, and finished in 1736. Upon the Great Bridge in the market-place there is a fine brass statue erected to the great Erasmus, who was born in this city in 1467, and died at Basil in Switzerland. He is represented in a furred gown, and a round cap, with a book in his hand. The statue is on a pedestal of marble, surrounded with rails of iron. Just by, one may see the house where this great man was born, which is a very small one, and has the following distich written on the door:

Ædibus his ortus, mundum decoravit, Erasmus,
Artibus, ingenio, religione, fide.

Rotterdam and the whole of the United Provinces are now in the possession of the French Republic. See REVOLUTION and *UNITED Provinces*.

ROTULA, in anatomy, the small bone of the knee, called also *patella*.

ROTUNDUS, in anatomy, a name given to several muscles otherwise called *teres*.

ROUAD See ARADUS.

ROUANE, or ROANE, an ancient and considerable town of France, in Lower Forez, with the title of a duchy; seated on the river Loire, at the place where it begins to be navigable for boats. E. Long. 4. 9. N. Lat. 46. 2.

ROUCOU, in dyeing, the same with ANOTTA and BIXA.

ROUEN, a city of France, and capital of Normandy, had an archbishop's see, a parliament, a mint, a handsome college, an academy, two abbeys, and an old castle. It is seven miles in circumference, and surrounded with six suburbs; and contained before the revolution 35 parishes, and 24 convents for men and women. The metropolitan church has a very handsome front, on which are two lofty steeples, whence there is a fine view of the town and country. The great bell is 13 feet high and 11 in diameter. The church of the Benedictine abbey is much admired by travellers. The parliament house is adorned with beautiful tapestry and fine pictures. There are a great number of fountains, though the houses are ordinary; but the walk upon the quay is very pleasant, and there are 13 gates from thence into the city. The number of the inhabitants are about 60,000, and they have several woollen manufactures. It is seated on the river Seine; and the tide rises so high, that vessels of 200 tons may come up to the quay: but one of the greatest curiosities is the bridge, of 270 paces in length, supported by boats, and consequently is higher or lower according to the tide. It is paved, and there are ways for foot-passengers on each side, with benches to sit upon; and coaches may pass over it at any hour of the day or night. It is often called *Roan* by English historians; and is 50 miles south-west of Amiens, and 70 north-west of Paris.

Though large, and enriched by commerce, Rouen is not an elegant place. The streets are almost all narrow, crooked, and dirty; the buildings old and irregular. It was fortified by St Louis in 1253, but the walls are now demolished. The environs, more peculiarly the hills which overlook the Seine, are wonderfully agreeable, and covered with magnificent villas. E. Long. 1. 10. N. Lat. 49. 26.

ROVERE, or ROVEREDO, a strong town of the Tyrol, on the confines of the republic of Venice; seated on the river Adige, at the foot of a mountain, and on the side of a stream, over which there is a bridge, defended by two large towers and a strong castle, 10 miles south of Trent. The town is tolerably well built, and governed by a chief magistrate, styled a *Podestat*. There are several churches and convents, that contain nothing worthy of notice. The most remarkable thing, and what they call the great *wonder of Roveredo*, is its spinning-house for a manufacture of silk, in which they have a great trade here to the fairs of Bolzano. They have also a very good trade in wine. Betwixt Trent and Roveredo is the strong fort of Belem, belonging to the house of Austria. It is situated on a rock, and commands the roads at the foot of the mountain. E. Long. 11. 1. N. Lat. 46. 12.

ROUERGUE, a province of France, in the government of Guienne; bounded on the east by the Cevennes and Gevaudan, on the west by Querci, on the north by the same and Auvergne, and on the south by Languedoc. It is 75 miles in length, and 50 in breadth; not very fertile, but feeds a number of cattle, and has mines of copper, iron, alum, vitriol, and sulphur. It is divided into a county, and the upper and lower marche. Rhodez is the capital town.

ROVIGNO, a populous town of Italy, in Istria, with two good harbours, and quarries of fine stone. It is seated in a territory which produces excellent wine, in a peninsula on the western coast. E. Long. 13. 53 N. Lat. 45. 14.

ROVIGO, is a town of Italy, in the territory of Venice, and capital of the Polesin di Rovigo, in E. Long. 12. 25. N. Lat. 45. 6. It is a small place, poorly inhabited, and encompassed with ruinous walls. Formerly it belonged to the duke of Ferrara, but has been subject to the Venetians since 1500, and is famous for being the birth-place of that learned man Cœlius Rhodoginus. It was built upon the ruins of Adria, anciently a noble harbour one mile from Rovigo, that gave name to the gulph, but now a half-drowned village, inhabited by a few fishermen.

ROUND-

ROUNDELAY, or Roundo, a sort of ancient poem, derived its name, according to Menage, from its form, and because it still turns back again to the first verse, and thus goes round. The common roundelay consists of 13 verses, eight of which are in one rhyme and five in another. It is divided into couplets; at the end of the second and third of which the beginning of the roundelay is repeated; and that, if possible, in an equivocal or punning sense. The roundelay is a popular poem in France, but is little known among us. Marot and Voiture have succeeded the best in it. Rapin remarks, that if the roundelay be not very exquisite, it is intolerably bad In all the ancient ones, Menage observes, that the verse preceding has a less complete sense, and yet joins agreeably with that of the close, without depending necessarily thereon. This rule, well observed, makes the roundelay more ingenious, and is one of the finesses of the poem. Some of the ancient writers speak of the roundelay or roundel as a kind of air appropriated to dancing; and in this sense the term seems to indicate little more than dancing in a circle with the hands joined

ROUND-House, a kind of prison for the nightly watch in London to secure disorderly persons till they can be carried before a magistrate.

Round-House, in a ship, the uppermost room or cabin on the stern of a ship, where the master lies.

ROUNDS, in military matters, a detachment from the main-guard, of an officer or a non-commissioned officer and six men, who go round the rampart of a garrison, to listen if any thing be stirring without the place, and to see that the centinels be diligent upon their duty, and all in order. In strict garrisons the rounds go every half-hour. The centinels are to challenge at a distance, and to rest their arms as the round passes. All guards turn out, challenge, exchange the parole, and rest their arms, &c.

Rounds are ordinary and extraordinary. The ordinary rounds are three; the town-major's round, the grand-round, and the visiting-round.

Manner of going the Rounds. When the town-major goes his round, he comes to the main guard, and demands a serjeant and four or six men to escort him to the next guard; and when it is dark, one of the men is to carry a light.

As soon as the sentry at the guard perceives the round coming, he shall give notice to the guard, that they may be ready to turn out when ordered; and when the round is advanced within about 20 or 30 paces of the guard, he is to challenge briskly; and when he is answered by the serjeant who attends the round, *Town-major's round*, he is to say, *Stand round!* and rest his arms; after which he is to call out immediately, *Serjeant turn out the guard, town-major's round.* Upon the sentry calling, the serjeant is to turn out the guard immediately, drawing up the men in good order with shouldered arms, the officer placing himself at the head of it, with his arms in his hand. He then orders the serjeant and four or six men to advance toward the round, and challenge: the serjeant of the round is to answer, *Town-major's round*, upon which the serjeant of the guard replies, *Advance, serjeant, with the parole!* at the same time ordering his men to rest their arms. The serjeant of the round advances alone, and gives the serjeant of the guard the parole in his ear, that none else may hear it; during which period the serjeant of the guard holds the spear of his halbert at the other's breast. The serjeant of the round then returns to his post, whilst the serjeant of the guard leaving his men to keep the round from advancing, gives the parole to his officer. This being found right, the officer orders his serjeant to return to his men; says, *Advance, town-major's round!* and orders the guard to rest their arms; upon which the serjeant of the guard orders his men to wheel back from the centre, and form a lane, through which the town-major is to pass (the escort remaining where they were), and go up to the officer and give him the parole, laying his mouth to his ear. The officer holds the spear of his esponton at the town major's breast while he gives him the parole.

The design of rounds is not only to visit the guards, and keep the centinels alert; but likewise to discover what passes in the outworks, and beyond them.

ROUSSILLON, a province of France, in the Pyrenees, bounded on the east by the Mediterranean sea, on the west by Cerdagne, on the north by Lower Languedoc, and on the south by Catalonia, from which it is separated by the Pyrenees. It is a fertile country, about 50 miles in length, and 25 in breadth, and remarkable for its great number of olive-trees. Perpignan is the capital town.

ROUSSEAU (James), an eminent painter, was born at Paris in the year 1630, and studied first under Swanevelt, who had married one of his relations; after which he improved himself by travelling into Italy, practising solely in perspective, architecture, and landscape. On his return home, he was employed at Marly. He distinguished himself very much in painting buildings, and by his knowledge of, and attention to, the principles of perspective. Louis XIV. employed him to decorate his hall of devices at St Germaine-en-Laie, where he represented the operas of Lulli. But being a Protestant, he quitted France on the persecution of his brethren, and retired to Swisserland. Louis invited him back; he refused, but sent his designs, and recommended a proper person to execute them. After a short stay in Swisserland, he went to Holland; whence he was invited over to England by Ralph duke of Montague, to adorn his new house in Bloomsbury, where he painted much. Some of his pictures, both in landscape and architecture, are over doors at Hampton-court; and he etched some of his own designs. His perspectives having been most commonly applied to decorate courts or gardens, have suffered much from the weather. Such of them as remain are monuments of an excellent genius The colours are durable and bright, and the choice of them most judicious. He died in Soho-square, about the year 169[illegible], aged 63.

Rousseau (John Baptist), a celebrated French poet, was born at Paris in April 1671. His father, who was a shoemaker in good circumstances, made him study in the best colleges of Paris, where he distinguished himself by his abilities. He at length applied himself entirely to poetry, and soon made himself known by several short pieces, that were filled with lively and agreeable images, which made him sought for by persons of the first rank, and men of the brightest genius. He was admitted in quality of *élève*, or pupil, into the academy of Inscriptions and Belles Lettres, in 1701, and

and almost all the rest of his life attached himself to some of the great lords. He attended marshal Tallard into England, in quality of secretary, and here contracted a friendship with St Evremond. At his return to Paris, he was admitted into the politest company, lived among the courtiers, and seemed perfectly satisfied with his situation; when, in 1708, he was prosecuted for being the author of some couplets, in which the characters of several persons of wit and merit were blackened by the most atrocious calumnies. This prosecution made much noise; and Rousseau was banished in 1712 out of the kingdom, to which he was never more to return, by a decree of the parliament of Paris. However, he always steadily denied, and even on his death-bed, his being the author of these couplets.—From the date of this sentence he lived in foreign countries, where he found illustrious protectors. The count de Luc, ambassador of France, in Switzerland, took him into his family, and studied to render his life agreeable. He took him with him to the treaty of Baden in 1714, where he was one of the plenipotentiaries, and presented him to prince Eugene, who entertaining a particular esteem for him, took him to Vienna, and introduced him to the emperor's court. Rousseau lived about three years with prince Eugene; but having lost his favour by satirising one of his mistresses, he retired to Brussels, where he afterwards usually resided, and where he met with much attention and much generosity, as we shall soon mention.—It was here that his disputes with Voltaire commenced, with whom he had become acquainted at the college of Louis the Great, who then much admired his turn for poetry. At that time Voltaire assiduously cultivated the acquaintance of Rousseau, and made him a present of all his works; and Rousseau, flattered by his respect, announced him as a man who would one day be a glory to the age. The author of the Henriad continued to consult him about his productions, and to lavish on him the highest encomiums, while their friendship daily increased. When they again met at Brussels, however, they harboured the blackest malice against one another. The cause of this enmity, as Rousseau and his friends tell the story, was a lecture which he had composed from his Epistle to Julia, now Urania. This piece frightened Voltaire, as it plainly discovered his rage against him. The young man, vexed at these calumnies, understood the whole as thrown out against him. This is what Rousseau asserts. But his adversaries, and the friends of the poet whom he cried down, suspected him, perhaps rather rashly, of having employed sarcasms, because he thought that his own reputation was in danger of being eclipsed by that of his rival. What is very singular, these two celebrated characters endeavoured each of them to prepossess the public with a bad opinion of the other, which they themselves never entertained in reality, and to smother in their breast that esteem for each other which, in defiance of all their exertions, still held its place. Rousseau, from the period of this dispute, always represented Voltaire as a buffoon, as a writer possessing neither taste nor judgment, who owed all his success to a particular mode which he pursued. As a poet he considered him as inferior to Lucan, and little superior to Pradon. Voltaire treated him still worse. Rousseau, according to him, was nothing better than a plagiarist, who could make shift to rhime, but could not make any reflections; that he had nothing but the talent of arranging words, and that he had even lost that in foreign countries. He thus addresses him, in a piece little known:

Aussitôt le Dieu qui m'inspire
T'arracha le luth et la lyre
Qu'avoient déshonorés tes mains;
Tu n'es plus qu'un reptile immonde,
Rebut du Parnasse et du monde
Enséveli dans tes venins.

In consequence of the little esteem in which Rousseau was held at Brussels, he could never forget Paris. The grand-prior of Vendome, and the baron de Breteuil, solicited the regent duke of Orleans to allow him to return; which favour was obtained. But our poet, before he would make use of the *lettres de rapel* issued in his favour, demanded a review of his process, which he wished to be repealed, not as a matter of favour, but by a solemn judgment of court; but his petition was refused. He then came over, in 1721, to England, where he printed *A Collection of his Work*, in 2 vols 12mo, at London. This edition, published in 1723, brought him near 10,000 crowns, the whole of which he placed in the hands of the Ostend company. The affairs of this company, however, soon getting into confusion, all those who had any money in their hands lost the whole of it, by which unfortunate event Rousseau, when arrived at that age when he stood most in need of the comforts of fortune, had nothing to depend upon but the generosity of some friends. Boutet, public notary in Paris, was peculiarly generous and attentive to him. He found a still greater asylum in the Duke d'Aremberg, whose table was open to him at all times; who being obliged in 1733 to go into the army in Germany, settled on him a pension of 1500 livres. But unfortunately he soon lost his good opinion, having been imprudent enough to publish in a Journal (of which Voltaire accused him), that the duke d'Aremberg was the author of those verses for which he himself had been banished France. He was therefore dismissed from his table, and his pride would not allow him to accept of the pension after this rupture. Brussels now became insupportable to him; and the count du Luc, and M. de Senozan, receiver-general of the church revenue, being informed of his disappointments, invited him to come privately to Paris, in the hopes of procuring a diminution of the period of his banishment. Some time previous to this Rousseau had published two new letters; one to P. Brumoi, on tragedy; the other to Rollin, on history. It is said, he expected from his letter to Brumoi to get the favour of all the Jesuits; and from the one to Rollin, the patronage of the Jansenists. He had likewise written an Ode, in praise of Cardinal de Fleury, on Peace, which met with a favourable reception, although it was not equal to some of his former pieces. He imagined his return to Paris would be found no difficult matter. He attempted it, and found he could not obtain a pass for a single year. Some say, that Rousseau had irritated some persons in power, by an allegory, called *The Judgment of Pluto*; in which piece he describes one of the principal judges, whose

Rousseau. whose skin Pluto had caused to be taken off, and stretched out on the seat in the bench. This satire, joined to the secret machinations of enemies, rendered all the attempts of his friends to procure his return abortive. After having staid three months at Paris, he returned to Brussels in February 1740, at which place he died March 17. 1741, strongly impressed with religious sentiments. Immediately before he received the viaticum, he protested he was not the author of those horrid verses which had so much embittered his life; and this declaration, in the opinion of the virtuous part of mankind, will be considered as a sufficient proof of his innocence. Some have said that Rousseau was profane, troublesome, capricious, forward, vindictive, envious, a flatterer, and a satirist. Others again represent him as a man full of candour and openness, a faithful and grateful friend, and as a Christian affected with a sense of religion.—Amidst such widely varied accounts it is difficult to form an opinion of his character. Such of our readers as wish to know more of this great poet may consult the Dictionary of M. Chaupepié, written with as much precision as impartiality, who endeavours to give a just idea of his character. From what he says, it does not appear that Rousseau can be cleared from the accusation brought against him of having attacked his benefactors. We believe he may be much more easily freed from the imputation brought against him by some of having disowned his father: for what occasion had Rousseau to conceal the obscurity of his birth? It exalted his own merit.

M. Seguy, in concert with M. the prince of la Tour Taffis, has given a very beautiful edition of his works, agreeable to the poet's last corrections. It was published in 1743, at Paris, in 3 vols. 4to, and in 4 vols. 12mo, containing nothing but what was acknowledged by the author as his own. It contains, 1. Four Books of Odes, of which the first are sacred odes, taken from the Psalms. "Rousseau (says Freron) unites in himself Pindar, Horace, Anacreon, and Malherbe. What fire, what genius, what flights of imagination, what rapidity of description, what variety of affecting strokes, what a crowd of brilliant comparisons, what richness of rhymes, what happy versification; but especially what inimitable expression! His verses are finished in the highest style of perfection that French verse is capable of assuming." The lyric compositions of Rousseau are, in general, above mediocrity. All his odes are not, however, of equal merit. The most beautiful are those which he has addressed to count du Luc, to Malherbe, to prince Eugene, to Vendôme, to the Christian princes; his Odes on the death of the prince de Conti, on the battle of Peterwaradin; and the Ode to Fortune, altho' there are certainly some few weak stanzas to be met with in it. There is considerable neatness in the composition of the Ode to a Widow, in his stanzas to the Abbé de Chaulieu, in his addresses to Rossignol, in his Odes to count de Bonneval, to M. Duche, and to count de Sinzindorf; and it is to be lamented that he wrote so few pieces of this kind, from which his genius seemed to lead him with difficulty. 2. Two books of Epistles, in verse. Although these do not want their beauties, yet there prevails too much of a misanthropic spirit in them, which takes away greatly from their excellence. He makes too frequent mention of his enemies and his misfortunes; he displays those principles which are supported less on the basis of truth than on those various passions, which ruled his mind at the time. He puts forth his anger in paradoxes. If he be reckoned equal to Horace in his odes, he is far inferior in his epistles. There is much more philosophy in the Roman poet than in him. 3. *Cantatas*. He is the father of this species of poetry, in which he stands unrivalled. His pieces of this sort breathe that poetical expression, that picturesque style, those happy turns, and those easy graces, which constitute the true character of this kind of writing. He is as lively and impetuous as he is mild and affecting, adapting himself to the passions of those persons whom he makes to speak. "I confess (says M. de la Harpe) that I find the cantatas of Rousseau more purely lyric than his odes, although he rises to greater heights in these. I see nothing in his cantatas but bold and agreeable images. He always addresses himself to the imagination, and he never becomes either too verbose or too prolix. On the contrary, in some of the best of his odes, we find some languishing stanzas, ideas too long delayed, and verses of inexcusable meanness." 4. *Allegories*, the most of which are happy, but some of them appear forced. 5. *Epigrams*, after the manner of Martial and Marot. He has taken care to leave out of this edition those pieces which licentiousness and debauchery inspired. They bear, indeed, as well as his other pieces, the marks of genius; but such productions are calculated only to dishonour their authors, and corrupt the heart of those who read them. 5. A book of *Poems on Various Subjects*, which sometimes want both ease and delicacy. The most distinguished are two eclogues, imitated from Virgil. 6. Four comedies in verse; the *Flatterer*, whose character is well supported; the *Imaginary Confathers*, a piece which had much less success, although it affords sufficiently good sentiment; the *Capricious Man*, and the *Dupe of Herself*, pieces of very inconsiderable merit. 7. Three comedies in prose; the *Coffee house*, the *Magic Girdle*, and the *Madrigore*, which are little better than his other theatrical pieces. The theatre was by no means his forte; he had a genius more suited for satire than comedy, more akin to Boileau's than Moliere's. 8. A *Collection of Letters*, in prose. In this edition he has selected the most interesting.—There is a larger collection in 5 volumes. This last has done at the same time both injury and honour to his memory. Rousseau in it speaks both in favour of and against the very same persons. He appears too hasty in tearing to pieces the characters of those who displeased him. We behold in them a man of a steady character and an elevated mind, who wishes to return to his native country only that he might be enabled completely to justify his reputation. We see him again corresponding with persons of great merit and uncommon integrity, with the Abbé d'Olivet, Racine the son, the poets La Fosse and Duche, the celebrated Rollin, M. le Franc de Pompignan, &c. &c. We meet also with some anecdotes and exact judgments of several writers. A bookseller in Holland has published his port-folio, which does him no honour. There are, indeed, some pieces in this wretched collection which did come from the pen of Rousseau; but he is less to be blamed for them than they are who have drawn these works from that oblivion to which our great poet had consigned

consigned them. A pretty good edition of his *Select Pieces* appeared at Paris in 1741, in a small 12mo volume. His portrait, engraved by the celebrated Aved, his old friend, made its appearance in 1778, with the following motto from Martial:

Certior in nostro carmine vultus erit.

Rousseau (John-James), was born at Geneva June 28. 1712. His father was by profession a clock and watch maker. At his birth, which, he says, was the first of his misfortunes, he endangered the life of his mother, and he himself was for a long time after in a very weak and languishing state of health; but as his bodily strength increased, his mental powers gradually opened, and afforded the happiest presages of future greatness. His father, who was a citizen of Geneva, was a well-informed tradesman; and in the place where he wrought he kept a Plutarch and a Tacitus, and these authors of course soon became familiar to his son. A rash juvenile step occasioned his leaving his father's house. "Finding himself a fugitive, in a strange country, and without money or friends, he changed (says he himself) his religion, in order to procure a subsistence." Bornex, bishop of Anneci, from whom he sought an asylum, committed the care of his education to Madame de Warrens, an ingenious and amiable lady, who had in 1726 left part of her wealth, and the Protestant religion, in order to throw herself into the bosom of the church. This generous lady served in the triple capacity of a mother, a friend, and a lover, to the new proselyte, whom she regarded as her son. The necessity of procuring for himself some settlement, however, or perhaps his unsettled disposition, obliged Rousseau often to leave this tender mother.

He possessed more than ordinary talents for music; and the Abbé Blanchard flattered his hopes with a place in the royal chapel, which he, however, failed in obtaining for him; he was therefore under the necessity of teaching music at Chamberi. He remained in this place till 1741, in which year he went to Paris, where he was long in very destitute circumstances. Writing to a friend in 1743, he thus expresses himself: "Every thing is dear here, but especially bread." What an expression; and to what may not genius be reduced! Meanwhile he now began to emerge from that obscurity in which he had hitherto been buried. His friends placed him with M. de Montaigu, ambassador from France to Venice. According to his own confession, a proud misanthropy and a peculiar contempt of the riches and pleasures of this world, constituted the chief traits in his character, and a misunderstanding soon took place between him and the ambassador. The place of depute, under M. Dupin, farmer-general, a man of considerable parts, gave him some temporary relief, and enabled him to be of some benefit to Madam de Warrens his former benefactress. The year 1750 was the commencement of his literary career. The academy of Dijon had proposed the following question: "Whether the *revival* of the arts and sciences has contributed to the refinement of manners?" Rousseau at first inclined to support the affirmative. "This is the *pons asinorum* (says a philosopher, at that time a friend of his), take the negative side of the question, and I'll promise you the greatest success."

His discourse against the sciences, accordingly, having been found to be the best written, and replete with the deepest reasoning, was publicly crowned with the approbation of that learned body. Never was a paradox supported with more eloquence; it was not however a new one; but he enriched it with all the advantages which either knowledge or genius could confer on it. Immediately after its appearance, he met with several opponents of his tenets, which he defended; and from one dispute to another, he found himself involved in a formidable train of correspondence, without having ever almost dreamed of such opposition. From that period he decreased in happiness as he increased in celebrity. His "Discourse on the causes of inequality among mankind, and on the origin of social compacts," a work full of almost unintelligible maxims and wild ideas, was written with a view to prove that mankind are equal; that they were born to live apart from each other; and that they have perverted the order of nature in forming societies. He bestows the highest praise on the state of nature, and depreciates the idea of every social compact. This discourse, and especially the dedication of it to the republic of Geneva, are the *chef-d'œuvres* of that kind of eloquence of which the ancients alone had given us any idea. By presenting this performance to the magistrates, he was received again into his native country, and reinstated in all the privileges and rights of a citizen, after having with much difficulty prevailed on himself to abjure the Catholic religion. He soon, however, returned to France, and lived for some time in Paris. He afterwards gave himself up to retirement, to escape the shafts of criticism, and follow after the regimen which the strangury, with which he was tormented, demanded of him. This is an important epoch in the history of his life, as it is owing to this circumstance, perhaps, that we have the most elegant works that have come from his pen. His "Letter to M. d'Alembert" on the design of erecting a theatre at Geneva, written in his retirement, and published in 1757, contains, along with some paradoxes, some very important and well-handled truths. This letter first drew down upon him the envy of Voltaire, and was the cause of those indignities with which that author never ceased to load him. What is singular in him, is, that although so great an enemy to theatrical representations himself, he caused a comedy to be printed, and in 1752 gave to the theatre a pastoral (The Village Conjuror), of which he composed both the poetry and music, both of them abounding with sentiment and elegance, and full of innocent and rural simplicity. What renders the Village Conjuror highly delightful to persons of taste, is that perfect harmony of words and music which everywhere pervades it; that proper connection among the parties who compose it; and its being perfectly correct from beginning to end. The musician hath spoken, hath thought, and felt like a poet. Every thing in it is agreeable, interesting, and far superior to those common affected and insipid productions of our modern petit-dramas. His Dictionary of Music affords several excellent articles; some of them, however, are very inaccurate. "This work (says M. la Borde), in his Essay on Music, has need to be written over again, to save much trouble to those who wish to study it, and prevent them from falling into errors, which

it is difficult to avoid, from the engaging manner in which Rousseau drags along his readers." The passages in it which have any reference to literature may be easily distinguished, as they are treated with the agreeableness of a man of wit and the exactness of a man of taste. Rousseau, soon after the rapid success of his Village Conjuror, published a Letter *on* French Music, or rather *against* French music, written with as much freedom as liveliness. The exasperated partisans of French comedy treated him with as much fury as if he had conspired against the state. A crowd of insignificant enthusiasts spent their strength in outcries against him. He was insulted, menaced, and lampooned. Harmonic fanaticism went even to hang him up in effigy.

That interesting and tender style, which is so conspicuous throughout the Village Conjuror, animates several letters in the New Heloisa, in six parts, published 1761, in 12mo. This epistolary romance, of which the plot is ill-managed, and the arrangement bad, like all other works of genius, has its beauties as well as its faults. More truth in his characters and more precision in his details were to have been wished. The characters, as well as their style, have too much sameness, and their language is too affected and exaggerated. Some of the letters are indeed admirable, from the force and warmth of expression, from an effervescence of sentiments, from the irregularity of ideas which always characterise a passion carried to its height. But why is so affecting a letter so often accompanied with an unimportant digression, an insipid criticism, or a self contradicting paradox? Why, after having shone in all the energy of sentiment, does he on a sudden turn unaffecting? It is because none of the personages are truly interesting. That of St Preux is weak, and often forced Julia is an assemblage of tenderness and pity, of elevation of soul and of coquetry, of natural parts and pedantry. Wolmar is a violent man, and almost beyond the limits of nature. In fine, when he wishes to change his style, and adopt that of the speaker, it may easily be observed that he does not long support it, and every attempt embarrasses the author and cools the reader. In the Heloisa, Rousseau's unlucky talent of rendering every thing problematical, appears very conspicuous; as in his arguments in favour of and against duelling, which afford an apology for suicide, and a just condemnation of it: in his facility in palliating the crime of adultery, and his very strong reasons to make it abhorred: on the one hand, in declamations against social happiness; on the other, in transports in favour of humanity: here, in violent rhapsodies against philosophers; there, by a rage for adopting their opinions: the existence of God attacked by sophistry, and Atheists confuted by the most irrefragable arguments; the Christian religion combated by the most specious objections, and celebrated with the most sublime eulogies.

His Emilia afterwards made more noise than the new Heloisa. This moral romance, which was published in 1762, in four vols 12mo, treats chiefly of education. Rousseau wished to follow nature in every thing; and though his system in several places differs from received ideas, it deserves in many respects to be put in practice, and with some necessary modifications it has been so. His precepts are expressed with the force and dignity of a mind full of the leading truths of morality. If he has not always been virtuous, no body at least has felt it more, or made it appear to more advantage. Every thing which he says against luxury shows the vices and conceited opinions of his age, and is worthy at once of Plato or of Tacitus. His style is peculiar to himself. He sometimes, however, appears, by a kind of affected rudeness and asperity, to ape at the mode of Montaigne, of whom he is a great admirer, and whose sentiments and expressions he often clothes in a new dress. What is most to be lamented is, that in wishing to educate a young man as a Christian he has filled his third volume with objections against Christianity. He has, it must be confessed, given a very sublime eulogium on the gospel, and an affecting portrait of its divine Author: but the miracles, and the prophecies which serve to establish his mission, he attacks without the least reserve. Admitting only natural religion, he weighs every thing in the balance of reason; and this reason being false, leads him into dilemmas very unfavourable to his own repose and happiness.

He dwelt from 1754 in a small house in the country near Montmorenci; a retreat which he owed to the generosity of a farmer-general. The cause of his love for this retirement was, according to himself, "that invincible spirit of liberty which nothing could conquer, and in competition with which honours, fortune, and reputation, could not stand. It is true, this desire of liberty has occasioned less pride than laziness; but this indolence is inconceivable. Every thing startles it; the most inconsiderable reciprocalities of social life are to it insupportable. A word to speak, a letter to write, a visit to pay, things necessary to be done, are to me punishments. Hear my reasons. Although the ordinary intercourse between mankind be odious to me, intimate friendship appears to me very dear; because there are no mere ceremonies due to it; it agrees with the heart, and all is accomplished. Hear, again, why I have always shunned kindnesses so much; because every act of kindness requires a grateful mind, and I find my heart ungrateful, from this alone, that gratitude is a duty. Lastly, that kind of felicity which is necessary for me, is not so much to do that which I wish, as not to do what I wish, not to do." Rousseau enjoyed this felicity which he so much wished in his retirement. Without entirely adopting that too rigorous mode of life pursued by the ancient Cynics, he deprived himself of every thing that could in any measure add fuel to this wished-for luxury, which is ever the companion of riches, and which inverts even custom itself. He might have been happy in this retreat, if he could have forgot this public which he affected to despise; but his desire after a great name got the better of his self love, and it was this thirst after reputation which made him introduce so many dangerous paragraphs in his Emilia.

The French parliament condemned this book in 1762, and entered into a criminal prosecution against the author, which forced him to make a precipitate retreat. He directed his steps towards his native country, which shut its gates upon him. Proscribed in the place where he first drew breath, he sought an asylum in Switzerland, and found one in the principality of Neufchatel. His first care was to defend his Emilia against the mandate of the archbishop of Paris, by whom it had been anathematised. In 1763 he published a letter, in which he re-exhibits all his errors, set off with the

the most animated display of eloquence, and in the most insidious manner. In this letter he describes himself as "more vehement than celebrated in his researches, but sincere on the whole, even against himself; simple and good, but sensible and weak; often doing evil, and always loving good; united by friendship, never by circumstances, and keeping more to his opinions than to his interests; requiring nothing of men, and not wishing to be under any obligation to them; yielding no more to their prejudices than to their will, and preserving his own as free as his reason; disputing about religion without licentiousness; loving neither impiety nor fanaticism, but disliking precise people more than bold spirits," &c. &c. From this specimen, the limitations he would appoint to this portrait may easily be discovered.

The letters of La Montaigne appeared soon after; but this work, far less eloquent, and full of envious discussions on the magistrates and clergy of Geneva, irritated the Protestant ministers without effecting a reconciliation with the clergy of the Romish church. Rousseau had solemnly abjured the latter religion in 1753, and, what is somewhat strange, had then resolved to live in France, a Catholic country. The Protestant clergy were not fully reconciled by this change; and the protection of the king of Prussia, to whom the principality of Neufchatel belonged, was not sufficient to rescue him from that obloquy which the minister of Moutiers-Travers, the village to which he had retired, had excited against him. He preached against Rousseau, and his sermons produced an uproar among the people. On the night between the 6th and 7th September 1765, some fanatics, drove on by wine and the declamations of their minister, threw some stones at the windows of the Genevan philosopher, who fearing new insults, in vain sought an asylum in the canton of Berne. As this Canton was connected with the republic of Geneva, they did not think proper to allow him to remain in their city, being proscribed by that republic. Neither his broken state of health, nor the approach of winter, could soften the hearts of these obdurate Spartans. In vain, to prevent them from the fear they had of the spreading of his opinions, did he beseech them to shut him up in prison till the spring; for even this favour was denied him. Obliged to set out on a journey, in the beginning of a very inclement season, he reached Strasbourg in a very destitute situation. He received from Marshal de Contades, who then commanded in that place, every accommodation which could be expected from generosity, humanity, and compassion. He waited there till the weather was milder, when he went to Paris, where Mr Hume then was, who determined on taking him with him to England. After having made some stay in Paris, Rousseau actually set out for London in 1766. Hume, much affected with his situation and his misfortunes, procured for him a very agreeable settlement in the country. Our Genevan philosopher was not, however, long satisfied with this new place. He did not make such an impression on the minds of the English as he had done on the French. His free disposition, his obdurate and melancholy temper, was deemed no singularity in England. He was there looked upon as an ordinary man, and the periodical prints were filled with satires against him. In particular, they published a forged letter from the king of Prussia, holding up to ridicule the principles and conduct of this new Diogenes. Rousseau imagined there was a plot between Hume and some philosophers in France to destroy his glory and repose. He sent a letter to him, filled with the most abusive expressions, and reproaching him for his conduct towards him. From this time he looked upon Hume as a wicked and perfidious person, who had brought him to England with no other view than to expose him to public ridicule; which foolish and chimerical idea was nourished by self-love and a restless disposition. He imagined that the English philosopher, amidst all his kindnesses, had something disagreeable in the manner of expressing them. The bad health of Rousseau, a strong and melancholy imagination, a too nice sensibility, a jealous disposition, joined with philosophic vanity, cherished by the false informations of his governess, who possessed an uncommon power over him; all these taken together, might tend to prepossess him with unfavourable sentiments of some innocent freedoms his benefactor might have taken with him, and might render him ungrateful, which he thought himself incapable of becoming. Meanwhile, these false conjectures and probabilities ought never to have had the weight with an honest mind to withdraw itself from its friend and benefactor. Proofs are always necessary in cases of this kind; and that which Rousseau had was by no means a certain demonstration. The Genevan philosopher, however, certainly returned to France. In passing through Amiens, he met with M. Gresset, who interrogated him about his misfortunes and the controversies he had been engaged in. He only answered, "You have got the art of making a parrot speak; but you are not yet possessed of the secret of making a bear speak." In the mean time, the magistrates of this city wished to confer on him some mark of their esteem, which he absolutely refused. His disordered imagination viewed these flattering civilities as nothing else than insults, such as were lavished on Sancho in the island of Barataria. He thought one part of the people looked upon him as like Lazarille of Tormes, who, being fixed to the bottom of a tub, with only his head out of the water, was carried from one town to another to amuse the vulgar. But these wrong and whimsical ideas did not prevent him from aspiring after a residence in Paris, where, without doubt, he was more looked on as a spectacle than in any other place whatever. On the 1st July 1770, Rousseau appeared, for the first time, at the regency coffee-house, dressed in ordinary clothing, having for some time previous to this wore an Armenian habit. He was loaded with praises by the surrounding multitude. "It is somewhat singular (says M. Senuebier) to see a man so haughty as he returning to the very place from whence he had been banished so often. Nor is it one of the smallest inconsistencies of this extraordinary character, that he preferred a retreat in that place of which he had spoken so much ill." It is as singular that a person under sentence of imprisonment should wish to live in so public a manner in the very place where his sentence was in force against him. His friends procured for him, however, liberty of staying, on condition that he should neither write on religion nor politics: he kept his word; for he wrote none at all. He was contented with living in a calm philosophical manner, giving himself to the society of a few tried friends, shunning the

company of the great, appearing to have given up all his whimsies, and affecting neither the character of a philosopher nor a *bel esprit*. He died of an apoplexy at Ermenon-ville, belonging to the marquis de Girardin, about ten leagues from Paris, July 2. 1778, aged 66 years. This nobleman has erected to his memory a very plain monument, in a grove of poplars, which constitutes part of his beautiful gardens. On the tomb are inscribed the following epitaphs:

Ici repose
L'Homme de la Nature
Et de la Verite!

Vitam impendere Vero *.

Hic jacent Ossa J. J. Rousseau.

* motto.

The curious who go to see this tomb likewise see the cloak which the Genevan philosopher wore. Above the door is inscribed the following sentence, which might afford matter for a whole book: "He is truly free, who, to accomplish his pleasure, has no need of *the assistance of a second person*." Rousseau, during his stay in the environs of Lyons, married Mademoiselle le Vasseur, his governess, a woman who, without either beauty or talents, had gained over him a great ascendancy. She waited on him in health and in sickness: But as if she had been jealous of possessing him alone, she drove from his mind, by the most perfidious insinuations, all those who came to entertain him; and when Rousseau did not dismiss them, she prevented their return by invariably refusing them admittance. By these means she the more easily led her husband into inconsistencies of conduct, which the originality of his character as well as of his opinions so much contributed to assist. Nature had perhaps but given him the embryo of his character, and art had probably united to make it more singular. He did not incline to associate with any person; and as this method of thinking and living was uncommon, it procured him a name, and he displayed a kind of fantasticalness in his behaviour and his writings. Like Diogenes of old, he united simplicity of manners with all the pride of genius; and a large stock of indolence, with an extreme sensibility, served to render his character still more uncommon. "An indolent mind (says he), terrified at every application, a warm, bilious, and irritable temperament, sensible also in a high degree to every thing that can affect it, appear not possible to be united in the same person: and yet these two contrarieties compose the chief of mine. An active life has no charms for me. I would an hundred times rather consent to be idle than to do any thing against my will; and I have an hundred times thought that I would live not amiss in the Bastille, provided I had nothing to do but just continue there. In my younger days I made several attempts to get in there; but as they were only with the view of procuring a refuge and rest in my old age, and, like the exertions of an indolent person, only by fits and starts, they were never attended with the smallest success. When misfortunes came, they afforded me a pretext of giving myself up to my ruling passion." He often exaggerated his misfortunes to himself as well as to others. He endeavoured particularly to render interesting by his description his misfortunes and his poverty, although the former were far less than he imagined, and notwithstanding he had certain resources against the latter. In other respects he was charitable, generous, sober, just, contenting himself with what was purely necessary, and refusing the means which might have procured him wealth and offices. He cannot, like many other sophists, be accused of having often repeated with a studied emphasis the word *Virtue*, without inspiring the sentiment. When he is speaking of the duties of mankind, of the principles necessary to our happiness, of the duty we owe to ourselves and to our equals, it is with a copiousness, a charm, and an impetuosity, that could only proceed from the heart. He said one day to M. de Buffon, "You have asserted and proved before J. J. Rousseau that mothers ought to suckle their children." "Yes (says this great naturalist), we have all said so; but M. Rousseau alone forbids it, and causes himself to be obeyed." Another academician said, "that the virtues of Voltaire were without heart, and those of Rousseau without head." He was acquainted at an early age with the works of the Greek and Roman authors; and the republican virtues there held forth to view, the rigorous austerity of Cato, Brutus, &c. carried him beyond the limits of a simple estimation of them. Influenced by his imagination, he admired every thing in the ancients, and saw nothing in his contemporaries but enervated minds and degenerated bodies.

His ideas about politics were almost as eccentric as his paradoxes about religion. Some reckon his *Social Compact*, which Voltaire calls the *Unsocial Compact*, the greatest effort his genius produced. Others find it full of contradictions, errors, and cynical passages, obscure, ill-arranged, and by no means worthy of his shining pen. There are several other small pieces wrote by him, to be found in a collection of his works published in 25 vols 8vo and 12mo, to which there is appended a very insignificant supplement in 6 vols.

The most useful and most important truths in this collection are picked out in his Thoughts; in which the confident sophist and the impious author disappear, and nothing is offered to the reader but the eloquent writer and the contemplative moralist. There were found in his port-folio his Confessions, in twelve books; the first six of which were published. "In the preface to these memoirs, which abound with characters well drawn, and written with warmth, with energy, and sometimes with elegance, he declares (says M. Palissot), like a peevish misanthrope, who boldly introduces himself on the ruins of the world, to declare to mankind, whom he supposes assembled upon these ruins, that in that innumerable multitude, none could dare to say, *I am better than that man*. This affectation of seeing himself alone in the universe, and of continually directing every thing to himself, may appear to some morose minds a fanaticism of pride, of which we have no examples, at least since the time of Cardan." But this is not the only blame which may be attached to the author of the Confessions. With uneasiness we see him, under the pretext of sincerity, dishonouring the character of his benefactress Lady Warren. There are innuendos no less offensive against obscure and celebrated characters, which ought entirely or partly to have been suppressed. A lady of wit said, that Rousseau would have been held in higher estimation for virtue, "had he died without his confession." The same opinion is entertained by M. Sennebier,

bier, author of the Literary History of Geneva: "His confessions (says he) appear to me to be a very dangerous book, and paint Rousseau in such colours as we would never have ventured to apply to him. The excellent analyses which we meet with of some sentiments, and the delicate anatomy which he makes of some actions, are not sufficient to counterbalance the detestable matter which is found in them, and the unceasing obloquies everywhere to be met with." It is certain, that if Rousseau has given a faithful delineation of some persons, he has viewed others through a cloud, which formed in his mind perpetual suspicions. He imagined he thought justly and spoke truly; but the simplest thing in nature, says M. Servant, if distilled through his violent and suspicious head, might become poison. Rousseau, in what he says of himself, makes such acknowledgments as certainly prove that there were better men than he, at least if we may judge him from the first six books of his memoirs, where nothing appears but his vices. They ought not perhaps to be separated from the six last books, where he speaks of the virtues which make reparation for them; or rather the work ought not to have been published at all, if it be true (which there can be little doubt of) that in his confessions he injured the public manners, both by the basenes of the vices he disclosed, and by the manner in which he united them with the virtues. The other pieces which we find in this new edition of his works are, 1. *The Reveries of a Solitary Wanderer*, being a journal of the latter part of his life. In this he confesses, that he liked better to send his children into hospitals destined for orphans, than to take upon himself the charge of their maintenance and education; and endeavours to palliate this error, which nothing can exculpate. 2. *Considerations upon the Government of Poland.* 3. *The Adventures of Lord Edward*, a novel, being a kind of supplement to the new Heloisa. 4. *Various Memoirs and Fugitive Pieces*, with a great number of letters, some of which are very long, and written with too much study, but containing some eloquent passages and some deep thought. 5. *Emilia and Sophia.* 6. *The Levite of Ephraim*, a poem in prose, in 4 cantos; written in a truly ancient style of simplicity. 7. *Letters to Sara.* 8. *An Opera and a Comedy.* 9. *Translations of the first book of Tacitus's History, of the Episode of Olinda and Sophronia, taken from Tasso*, &c. &c. Like all the other writings of Rousseau, we find in these posthumous pieces many admirable and some useful things; but they also abound with contradictions, paradoxes, and ideas very unfavourable to religion. In his letters especially we see a man chagrined at misfortunes, which he never attributes to himself, suspicious of every body about him, calling and believing himself a lamb in the midst of wolves; in one word, as like Pascal in the strength of his genius, as in his fancy of always seeing a precipice about him. This is the reflection of M. Servant, who knew him, assisted him, and caressed him during his retreat at Grenoble in 1768. This magistrate having been very attentive in observing his character, ought the rather to be believed, as he inspected it without either malice, envy, or resentment, and only from the concern he had for this philosopher, whom he loved and admired.

ROUT, in law, is applied to an assembly of persons going forcibly to commit some unlawful act, whether they execute it or not. See RIOT.

ROUTE, a public road, highway, or course, especially that which military forces take. This word is also used for the defeat and flight of an army.

ROWE (Nicholas), descended of an ancient family in Devonshire, was born in 1673. He acquired a complete taste of the classic authors under the famous Dr Busby in Westminster school; but poetry was his early and darling study. His father, who was a lawyer, and designed him for his own profession, entered him a student in the Middle Temple. He made remarkable advances in the study of the law; but the love of the belles lettres, and of poetry in particular, stopt him in his career. His first tragedy, the Ambitious Stepmother, meeting with universal applause, he laid aside all thoughts of rising by the law. He afterward composed several tragedies; but that which he valued himself most upon, was his Tamerlane. The others are, the *Fair Penitent*, *Ulysses*, the *Royal Convert*, *Jane Shore*, and *Lady Jane Grey*. He also wrote a poem called the *Biter*, and several poems upon different subjects, which have been published under the title of Miscellaneous Works, in one volume, as his dramatic works have been in two. Rowe is chiefly to be considered (Dr Johnson observes) in the light of a tragic writer and a translator. In his attempt at comedy, he failed so ignominiously, that his Biter is not inserted in his works; and his occasional poems and short compositions are rarely worthy of either praise or censure, for they seem the casual sports of a mind seeking rather to amuse its leisure than to exercise its powers. In the construction of his dramas there is not much art; he is not a nice observer of the unities. He extends time, and varies place, as his convenience requires. To vary the place is not (in the opinion of the learned critic from whom these observations are borrowed) any violation of nature, if the change be made between the acts; for it is no less easy for the spectator to suppose himself at Athens in the second act, than at Thebes in the first; but to change the scene, as is done by Rowe in the middle of an act, is to add more acts to the play, since an act is so much of the business as is transacted without interruption. Rowe, by this licence, easily extricates himself from difficulties; as in Lady Jane Gray, when we have been terrified with all the dreadful pomp of public execution, and are wondering how the heroine or the poet will proceed, no sooner has Jane pronounced some prophetic rhimes, than—pass and be gone—the scene closes, and Pembroke and Gardiner are turned out upon the stage. I know not (says Dr Johnson) that there can be found in his plays any deep search into nature, any accurate discriminations of kindred qualities, or nice display of passion in its progress; all is general and undefined. Nor does he much interest or affect the auditor, except in Jane Shore, who is always seen and heard with pity. Alicia is a character of empty noise, with no resemblance to real sorrow or to natural madness. Whence then has Rowe his reputation? From the reasonableness and propriety of some of his scenes, from the elegance of his diction, and the suavity of his verse. He seldom moves either pity or terror, but he often elevates the sentiment; he seldom pierces the breast, but he always delights the ear, and often improves the under-

Rowe.

understanding. Being a great admirer of Shakespeare, he gave the public an edition of his plays; to which he prefixed an account of that great man's life. But the most considerable of Mr Rowe's performances was a translation of Lucan's *Pharsalia*, which he just lived to finish, but not to publish; for it did not appear in print till 1728, ten years after his death.

Meanwhile, the love of poetry and books did not make him unfit for business; for nobody applied closer to it when occasion required. The Duke of Queensberry, when secretary of state, made him secretary for public affairs. After the Duke's death, all avenues were stopped to his preferment; and during the rest of Queen Anne's reign he passed his time with the Muses and his books. A story, indeed, is told of him, which shows that he had some acquaintance with her ministers. It is said, that he went one day to pay his court to the lord treasurer Oxford, who asked him, "If he understood Spanish well?" He answered, "No:" but thinking that his Lordship might intend to send him into Spain on some honourable commission, he presently added, "that he did not doubt but he could shortly be able both to understand and to speak it." The earl approving what he said, Rowe took his leave; and, retiring a few weeks to learn the language, waited again on the Earl to acquaint him with it. His Lordship asking him, "If he was sure he understood it thoroughly?" and Rowe affirming that he did, "How happy are you, Mr Rowe," said the Earl, "that you can have the pleasure of reading and understanding the History of Don Quixote in the original!" On the accession of George I. he was made poet laureat, and one of the land surveyors of the customs in the port of London. The prince of Wales conferred on him the clerkship of his council; and the Lord Chancellor Parker made him his secretary for the presentations. He did not enjoy these promotions long; for he died Dec. 6. 1718, in his 45th year.

Mr Rowe was twice married, had a son by his first wife, and a daughter by his second. He was a handsome, genteel man; and his mind was as amiable as his person. He lived beloved; and at his death had the honour to be lamented by Mr Pope, in an epitaph which is printed in Pope's works, although it was not affixed on Mr Rowe's monument in Westminster-abbey, where he was interred in the poet's corner, opposite to Chaucer.

Rowe (Elisabeth), an English lady, eminent for her excellent writings both in prose and verse, born at Ilchester in Somersetshire in 1647, was the daughter of worthy parents, Mr Walter Singer and Mrs Elisabeth Portnel. She received the first serious impressions of religion as soon as she was capable of it. There being a great affinity between painting and poetry, this lady, who had a vein for the one, naturally had a taste for the other. She was also very fond of music; chiefly of the grave and solemn kind, as best suited to the grandeur of her sentiments and the sublimity of her devotion. But poetry was her favourite employment, her distinguishing excellence. So prevalent was her genius this way, that her prose is all poetical. In 1696, a collection of her poems was published at the desire of two friends. Her paraphrase on the xxxviiith chapter of Job was written at the request of bishop Ken. She had no other tutor for the French and Italian languages than the honourable Mr Thynne, who willingly took the task upon himself. Her shining merit, with the charms of her person and conversation, had procured her a great many admirers. Among others, it is said, the famous Mr Prior made his addresses to her. But Mr Thomas Rowe was to be the happy man. This gentleman was honourably descended: and his superior genius, and insatiable thirst after knowledge, were conspicuous in his earliest years. He had formed a design to compile the lives of all the illustrious persons in antiquity omitted by Plutarch; which, indeed, he partly executed. Eight lives were published since his decease. They were translated into French by the abbé Bellenger in 1734. He spoke with ease and fluency; had a frank and benevolent temper, an inexhaustible fund of wit, and a communicative disposition. Such was the man who, charmed with the person, character, and writings, of our authoress, married her in 1710, and made it his study to repay the felicity with which she crowned his life. Too intense an application to study, beyond what the delicacy of his frame would bear, broke his health, and threw him into a consumption, which put a period to his valuable life in May 1715, when he was but just past the 28th year of his age. Mrs Rowe wrote a beautiful elegy on his death; and continued to the last moments of her life to express the highest veneration and affection for his memory. As soon after his decease as her affairs would permit, she indulged her inclination for solitude, by retiring to Frome, in Somersetshire, in the neighbourhood of which place the greatest part of her estate lay. In this recess it was that she composed the most celebrated of her works, Friendship in Death, and the Letters Moral and Entertaining. In 1736, she published, the History of Joseph; a poem which she had written in her younger years. She did not long survive this publication; for she died of an apoplexy, as was supposed, Feb. 20. 1736-7. In her cabinet were found letters to several of her friends, which she had ordered to be delivered immediately after her decease. The Rev. Dr Isaac Watts, agreeably to her request, revised and published her devotions in 1737, under the title of Devout Exercises of the Heart in Meditation and Soliloquy, Praise and Prayer; and, in 1739, her Miscellaneous Works, in prose and verse, were published in 2 vols 8vo, with an account of her life and writings prefixed.

As to her person, she was not a regular beauty, yet possessed a large share of the charms of her sex. She was of a moderate stature, her hair of a fine colour, her eyes of a darkish grey inclining to blue, and full of fire. Her complexion was very fair, and a natural blush glowed in her cheeks. She spoke gracefully; her voice was exceedingly sweet and harmonious; and she had a softness in her aspect which inspired love, yet not without some mixture of that awe and veneration which distinguished sense and virtue, apparent in the countenance, are wont to create.

ROWEL, among farriers, a kind of issue answering to what in surgery is called a *seton*. See Farriery, sect. v.

ROWLEY, a monk who is said to have flourished at Bristol in the 15th century, and to have been an author voluminous and elegant. Of the poems attributed to him, and published some time ago, various opinions

opinions have been entertained, which we have noticed elsewhere. They seem now to be almost forgotten. See CHATTERTON.

ROWLEY (William), who stands in the third class of dramatic writers, lived in the reign of king Charles I. and received his education at the university of Cambridge; but whether he took any degree there, is not evident; there being but few particulars preserved in regard to him more than his close intimacy and connection with all the principal wits and poetical geniuses of that age, by whom he was well beloved, and with some of whom he joined in their writings. Wood styles him "the ornament, for wit and ingenuity, of Pembrokehall in Cambridge." In a word, he was a very great benefactor to the English stage, having, exclusive of his aid lent to Middleton, Day, Heywood, Webster, &c. left us five plays of his own composing, and one in which even the immortal Shakespeare afforded him some assistance.

ROXBURGH-SHIRE, or TEVIOTDALE, a county of Scotland, deriving its name from the town of Roxburgh, which is now destroyed, and the river Teviot, that runs through the shire into the Tweed, is divided into the three districts of *Teviotdale*, *Liddisdale*, and *Eskdale*, or *Eusdale*, so called from their respective rivers, Teviot, Liddal, and Esk. It is bounded on the east and south-east by Northumberland and Cumberland, on the south and south-west by Annandale, on the west by Tweeddale, on the north by the Merse and Lauderdale; extending about 30 miles from east to west, and about 15 in breadth from the border of England to the Blue Cairn in Lauder-moor. The shire exhibits a rough irregular appearance of hills, mosses, and mountains, interspersed, however, with narrow valleys, and watered with delightful streams. Though the face of the country is bare of woods, the valleys yield plenty of corn, and the hills abound with pasture for sheep and black cattle. The principal mountains of this country are known by the name of *Cockraw*: from whence a range of very high hills runs westward, dividing Scotland from England. On the confines of this shire are the debateable lands; the property of which was formerly disputed by the Scots and English borderers, but adjudged to the Scots at the union of the crowns.—Roxburghshire yields plenty of lime and freestone, which in former times was freely used by the inhabitants in building castles to defend them from the invasions of their English neighbours. The most distinguished families in this county are the Scots and Kers, who raised themselves to wealth and honours by their bravery and success in a sort of predatory war with their enemies of South Britain. The shire is very populous; and the people are stout and valiant. They were formerly inured to military discipline and all the dangers of war, by living on dry marches contiguous to those of England; being so numerous and alert, that this and the neighbouring shire of Berwick could in 24 hours produce 10,000 men on horseback, well armed and accoutred. In the shire of Roxburgh we still meet with a great number of old castles and seats belonging to private gentlemen, whose ancestors signalized themselves in this manner; and we find the remains of old encampments, and a Roman military way, vulgarly called the *causeway*, running from Haunum to the Tweed. The principal town, called *Roxburgh*, giving the title of *duke* to the chief of the Kers, was anciently a royal borough, containing divers parishes, large and flourishing, defended by a strong citadel, which was often alternately reduced by the English and Scotch adventurers. It was in besieging this castle that James II. of Scotland lost his life by the bursting of a cannon. In consequence of the almost continual wars between the two nations, this fortress was razed, the town ruined, and its royalty translated to Jedburgh, which is now a royal borough, situated between the Tefy and Jed.

ROXENT-CAPE, or *ROCK of Lisbon*, a mountain and remarkable promontory in Portugal, situated in the Atlantic ocean, at the north entrance of the Tagus, 22 miles north of Lisbon.

ROYAL, something belonging to a king: thus we say, royal family, royal assent, royal exchange, &c.

ROYAL Family. The first and most considerable branch of the king's royal family, regarded by the laws of England, is the queen.

1. The queen of England is either queen *regent*, queen *consort*, or queen *dowager*. The queen *regent*, *regnant*, or *sovereign*, is she who holds the crown in her own right; as the first (and perhaps the second) queen Mary, queen Elisabeth, and queen Anne; and such a one has the same powers, prerogatives, rights, dignities, and duties, as if she had been a king. This is expressly declared by statute 1 Mar. I. st. 3. c. 1. But the queen *consort* is the wife of the reigning king; and she by virtue of her marriage is participant of divers prerogatives above other women.

And, first, she is a public person, exempt and distinct from the king; and not, like other married women, so closely connected as to have lost all legal or separate existence so long as the marriage continues. For the queen is of ability to purchase lands and to convey them, to make leases, to grant copyholds, and do other acts of ownership, without the concurrence of her lord; which no other married woman can do: a privilege as old as the Saxon era. She is also capable of taking a grant from the king, which no other wife is from her husband; and in this particular she agrees with the *augusta* or *piissima regina conjux divi imperatoris* of the Roman laws; who, according to Justinian, was equally capable of making a grant to, and receiving one from, the emperor. The queen of England hath separate courts and officers distinct from the king's, not only in matters of ceremony, but even of law; and her attorney and solicitor general are entitled to a place within the bar of his majesty's courts, together with the king's counsel. She may likewise sue and be sued alone, without joining her husband. She may also have a separate property in goods as well as lands, and has a right to dispose of them by will. In short, she is in all legal proceedings looked upon as a feme sole, and not as a feme covert; as a single, not as a married woman. For which the reason given by Sir Edward Coke is this: because the wisdom of the common law would not have the king (whose continual care and study is for the public, and *circa ardua regni*) to be troubled and disquieted on account of his wife's domestic affairs; and therefore it vests in the queen a power of transacting her own concerns, without the intervention of the king, as if she was an unmarried woman.

The queen hath also many exemptions, and minute prerogatives. For instance: she pays no toll; nor is she

ſhe liable to any amercement in any court. But in general, unleſs where the law has expreſsly declared her exempted, ſhe is upon the ſame footing with other ſubjects; being to all intents and purpoſes the king's ſubject, and not his equal: in like manner as in the imperial law, *Auguſtus legibus ſolutus non eſt.*

The queen hath alſo ſome pecuniary advantages, which form her a diſtinct revenue: as, in the firſt place, ſhe is intitled to an ancient perquiſite called *queen-gold*, or *aurum reginæ*; which is a royal revenue belonging to every queen-conſort during her marriage with the king, and due from every perſon who hath made a voluntary offering or fine to the king, amounting to 10 merks or upwards, for and in conſideration of any privileges, grants, licences, pardons, or other matter of royal favour conferred upon him by the king: and it is due in the proportion to one-tenth part more, over and above the entire offering or fine made to the king, and becomes an actual debt of record to the queen's majeſty by the mere recording of the fine. As, if 100 merks of ſilver be given to the king for liberty to take in mortmain, or to have a fair, market, park, chaſe, or free-warren; there the queen is intitled to 10 merks in ſilver, or (what was formerly an equivalent denomination) to one merk in gold, by the name of *queen-gold*, or *aurum reginæ*. But no ſuch payment is due for any aids or ſubſidies granted to the king in parliament or convocation; or for fines impoſed by courts on offenders againſt their will; nor for voluntary preſents to the king, without any conſideration moving from him to the ſubject; nor for any ſale or contract whereby the preſent revenues or poſſeſſions of the crown are granted away or diminiſhed.

The original revenue of our ancient queens, before and ſoon after the conqueſt, ſeems to have conſiſted in certain reſervations or rents out of the demeſne lands of the crown, which were expreſsly appropriated to her majeſty, diſtinct from the king. It is frequent in domeſday book, after ſpecifying the rent due to the crown, to add likewiſe the quantity of gold or other renders reſerved to the queen. Theſe were frequently appropriated to particular purpoſes; to buy wood for her majeſty's uſe, to purchaſe oil for lamps, or to furniſh her attire from head to foot, which was frequently very coſtly, as one ſingle robe in the fifth year of Henry II. ſtood the city of London in upwards of 80 pounds: A practice ſomewhat ſimilar to that of the eaſtern countries, where whole cities and provinces were ſpecifically aſſigned to purchaſe particular parts of the queen's apparel. And for a farther addition to her income, this duty of queen-gold is ſuppoſed to have been originally granted; thoſe matters of grace and favour, out of which it aroſe, being frequently obtained from the crown by the powerful interceſſion of the queen. There are traces of its payment, though obſcure ones, in the book of domeſday, and in the great pipe-roll of Henry I. In the reign of Henry II. the manner of collecting it appears to have been well underſtood; and it forms a diſtinct head in the ancient dialogue of the exchequer written in the time of that prince, and uſually attributed to Gervaſe of Tilbury. From that time downwards, it was regularly claimed and enjoyed by all the queen-conſorts of England till the death of Henry VIII.; though after the acceſſion of the Tudor family, the collecting of it ſeems to have been much neglected: and there being no queen conſort afterwards till the acceſſion of James I. a period of near 60 years, its very nature and quantity then became a matter of doubt; and being referred by the king to the chief juſtices and chief baron, their report of it was ſo very unfavourable, that his conſort queen Anne, though ſhe claimed it, yet never thought proper to exact it. In 1635, 11 Car. I. a time fertile of expedients for raiſing money upon dormant precedents in our old records (of which ſhip-money was a fatal inſtance), the king, at the petition of his queen Henrietta Maria, iſſued out his writ for levying it; but afterwards purchaſed it of his conſort at the price of 10,000 pounds; finding it, perhaps, too trifling and troubleſome to levy. And when afterwards, at the Reſtoration, by the abolition of military tenures, and the fines that were conſequent upon them, the little that legally remained of this revenue was reduced to almoſt nothing at all; in vain did Mr Prynne, by a treatiſe that does honour to his abilities as a painful and judicious antiquarian, endeavour to excite queen Catherine to revive this antiquated claim.

Another ancient perquiſite belonging to the queen conſort, mentioned by all our old writers, and therefore only worthy notice, is this: that on the taking a whale on the coaſts, which is a royal fiſh, it ſhall be divided between the king and queen; the head only being the king's property, and the tail of it the queen's. *De ſturgione obſervetur, quod rex illum habebit integrum: de balena vero ſufficit, ſi rex habeat caput, et regina caudam.* The reaſon of this whimſical diviſion, as aſſigned by our ancient records, was, to furniſh the queen's wardrobe with whale-bone.

But farther: though the queen is in all reſpects a ſubject, yet, in point of the ſecurity of her life and perſon, ſhe is put upon the ſame footing with the king. It is equally treaſon (by the ſtatute 25 Edward III.) to imagine or compaſs the death of our lady the king's companion, as of the king himſelf; and to violate or defile the queen conſort, amounts to the ſame high crime; as well in the perſon committing the fact, as in the queen herſelf if conſenting. A law of Henry VIII. made it treaſon alſo for any woman who was not a virgin, to marry the king without informing him thereof: but this law was ſoon after repealed; it treſpaſſing too ſtrongly, as well on natural juſtice as female modeſty. If however the queen be accuſed of any ſpecies of treaſon, ſhe ſhall (whether conſort or dowager) be tried by the peers of parliament, as queen Ann Boleyn was in 28 Hen. VIII.

The huſband of a queen regnant, as prince George of Denmark was to queen Anne, is her ſubject; and may be guilty of high treaſon againſt her: but, in the inſtance of conjugal fidelity, he is not ſubjected to the ſame penal reſtrictions. For which the reaſon ſeems to be, that if a queen conſort is unfaithful to the royal bed, this may debaſe or baſtardize the heirs to the crown; but no ſuch danger can be conſequent on the infidelity of the huſband to a queen regnant.

2. A queen *dowager* is the widow of the king, and as ſuch enjoys moſt of the privileges belonging to her as queen conſort. But it is not high treaſon to conſpire her death, or to violate her chaſtity; for the ſame reaſon as was before alleged, becauſe the ſucceſſion to the crown is not thereby endangered. Yet it is [illegible]

dignitate regali, no man can marry a queen-dowager without special licence from the king, on pain of forfeiting his lands and goods. This Sir Edward Coke tells us, was enacted in parliament in 6 Henry VI. though the statute be not in print. But she, though an alien born, shall still be entitled to dower after the king's demise, which no other alien is. A queen-dowager when married again to a subject, doth not lose her regal dignity, as peeresses-dowager do when they marry commoners. For Katharine, queen dowager of Henry V. though she married a private gentleman, Owen ap Meredith ap Theodore, commonly called *Owen Tudor;* yet, by the name of *Katharine queen of England*, maintained an action against the bishop of Carlisle. And so the dowager of Navarre marrying with Edmond the brother of king Edward I. maintained an action of dower by the name of *queen of Navarre*.

3. The prince of Wales, or heir apparent to the crown, and also his royal consort, and the princess royal, or eldest daughter of the king, are likewise peculiarly regarded by the laws. For, by statute 25 Edw. III. to compass or conspire the death of the former, or to violate the chastity of either of the latter, are as much high treason as to conspire the death of the king, or violate the chastity of the queen. And this upon the same reason as was before given; because the prince of Wales is next in succession to the crown, and to violate his wife might taint the blood-royal with bastardy; and the eldest daughter of the king is also alone inheritable to the crown on failure of issue male, and therefore more respected by the laws than any of her younger sisters; insomuch that upon this, united with other (feodal) principles, while our military tenures were in force, the king might levy an aid for marrying his eldest daughter, and her only. The heir apparent to the crown is usually made prince of Wales and earl of Chester, by special creation and investiture; but being the king's eldest son, he is by inheritance duke of Cornwall, without any new creation.

4. The rest of the royal family may be considered in two different lights, according to the different senses in which the term *royal family* is used. The larger sense includes all those who are by any possibility inheritable to the crown. Such, before the revolution, were all the descendants of William the Conqueror; who had branched into an amazing extent by intermarriages with the ancient nobility. Since the revolution and act of settlement, it means the Protestant issue of the princess Sophia; now comparatively few in number, but which in process of time may possibly be as largely diffused. The more confined sense includes only those who are in a certain degree of propinquity to the reigning prince, and to whom therefore the law pays an extraordinary regard and respect; but after that degree is past, they fall into the rank of ordinary subjects, and are seldom considered any farther, unless called to the succession upon failure of the nearer lines. For though collateral consanguinity is regarded indefinitely with respect to inheritance or succession, yet it is and can only be regarded within some certain limits in any other respect, by the natural constitution of things and the dictates of positive law.

The younger sons and daughters of the king, and other branches of the royal family, who are not in the immediate line of succession, were therefore little farther regarded by the ancient law, than to give them a certain degree of precedence before all peers and public officers as well ecclesiastical as temporal. This is done by the statute 31 Henry VIII. c. 10. which enacts, that no person except the king's children shall presume to fix or have place at the side of the cloth of estate in the parliament chamber; and that certain great officers therein named shall have precedence above all dukes, except only such as shall happen to be the king's son, brother, uncle, nephew (which Sir Edward Coke explains to signify grandson or *nepos*), or brother's or sister's son. But under the description of the king's *children*, his *grandsons* are held to be included, without having recourse to Sir Edward Coke's interpretation of *nephew;* and therefore when his late majesty king George II. created his grandson Edward, the second son of Frederick prince of Wales deceased, duke of York, and referred it to the house of lords to settle his place and precedence, they certified that he ought to have precedence next to the late duke of Cumberland, the then king's youngest son; and that he might have a seat on the left hand of the cloth of estate. But when, on the accession of his present majesty, these royal personages ceased to take place as the *children*, and ranked only as the *brother* and *uncle* of the king, they also left their seats on the side of the cloth of estate; so that when the duke of Gloucester, his majesty's second brother, took his seat in the house of peers, he was placed on the upper end of the earls bench (on which the dukes usually sit) next to his royal highness the duke of York. And in 1717, upon a question referred to all the judges by king George I. it was resolved, by the opinion of ten against the other two, that the education and care of all the king's grandchildren, while minors, did belong of right to his majesty as king of this realm, even during their father's life. But they all agreed, that the care and approbation of their marriages, when grown up, belonged to the king their grandfather. And the judges have more recently concurred in opinion, that this care and approbation extend also to the presumptive heir of the crown; though to what other branches of the royal family the same did extend, they did not find precisely determined. The most frequent instances of the crown's interposition go no farther than nephews and nieces; but examples are not wanting of its reaching to more distant collaterals. And the statute 6 Henry VI. before mentioned, which prohibits the marriage of a queen-dowager without the consent of the king, assigns this reason for it: "because the disparagement of the queen shall give greater comfort and example to other ladies of estate, who are of the blood-royal, more lightly to disparage themselves." Therefore by the statute 28 Hen. VIII. c. 18. (repealed, among other statutes of treasons, by 1 Edw. VI. c. 12.) it was made high treason for any man to contract marriage with the king's children or reputed children, his sisters or aunts *ex parte paterna*, or the children of his brethren or sisters; being exactly the same degrees to which precedence is allowed by the statute 31 Hen. VIII. before-mentioned. And now, by statute 12 Geo. III. c. 11. no descendant of the body of king George II (other than the issue of princesses married into foreign families) is capable of con-

trafting matrimony, without the previous consent of the king signified under the great seal; and any marriage contracted without such a consent is void. Provided, that such of the said descendants as are not above 25, may after a twelvemonth's notice given to the king's privy council, contract and solemnize marriage without the consent of the crown: unless both houses of parliament shall, before the expiration of the said year, expressly declare their disapprobation of such intended marriage. And all persons solemnizing, assisting, or being present at any such prohibited marriage, shall incur the penalties of the statute of *præmunire*.

Royal Oak, a fair spreading tree at Boscobel, in the parish of Donnington in Staffordshire, the boughs whereof were once covered with ivy; in the thick of which king Charles II. sat in the day-time with colonel Careless, and in the night lodged in Boscobel house: so that they are mistaken who speak of it as an old hollow oak; it being then a gay flourishing tree, surrounded with many more. The poor remains thereof are now fenced in with a handsome wall, with this inscription in gold letters: *Felicissimam arborem quam in asylum potentissimi regis Caroli II. Deus op. max. per quem reges regnant, hic crescere voluit*, &c.

Royal Society. See SOCIETY.

ROYALTIES, the rights of the king, otherwise called the *king's prerogative*, and the *regalia*. See PREROGATIVE and REGALIA.

ROYENIA, in botany: A genus of the digynia order, belonging to the decandria class of plants; and in the natural method ranking under the 18th order, *Bicornes*. The calyx is urceolated; the corolla monopetalous, with the limb revoluted; the capsule is unilocular and quadrivalved.

ROYSTON, a town of Hertfordshire in England, seated in E. Long. 0. 1. N. Lat. 52. 3. It is a large place, seated in a fertile vale full of inns, and the market is very considerable for corn. There was lately discovered, almost under the market-place, a subterraneous chapel of one Rosia, a Saxon Lady: it has several altars and images cut out of the chalky sides, and is in form of a sugar-loaf, having no entrance but at the top.

RUBBER (*India*). See CAOUTCHOUC.

RUBENS (Sir Peter Paul), the most eminent of the Flemish painters, was born in 1577; but whether at Antwerp or Cologne it is not easy to determine. His father, who was a counsellor in the senate of Antwerp, had been forced by the civil wars to seek refuge in Cologne, and during his residence there Rubens is commonly said to have been born.

The genius of Rubens, which began to unfold itself in his earliest years, was cultivated with peculiar care, and embellished with every branch of classical and polite literature.

He soon discovered a strong inclination for designing; and used to amuse himself with that employment in his leisure hours, while the rest of his time was devoted to other studies. His mother, perceiving the bias of her son, permitted him to attend the instructions of Tobias Verhaecht a painter of architecture and landscape. He next became the pupil of Adam Van Oort, but he soon found that the abilities of this master were insufficient to answer his elevated ideas. His surly temper too was disgustful to Rubens, whose natural disposition was modest and amiable. Rubens.

Anxious to find an artist whose genius and dispositions were congenial with his own, he became the disciple of Octavio Van Veen, generally known by the name of Otho Venius, a painter of singular merit, and who was not only skilled in the principles of his art, but also distinguished for learning and other accomplishments. Between the master and scholar a remarkable similarity appeared in temper and inclination; indeed, in the whole turn of their minds. It was this congeniality of sentiments which animated Rubens with that ardent passion for the art of painting which at length determined him to pursue it as a profession. From this time he gave up his whole mind to it; and so successful were his exertions, that he soon equalled his master.

In order to arrive at that perfection which he already beheld in idea, it became requisite to study the productions of the most eminent artists. For this purpose he travelled through Italy, visiting the most valuable collections of paintings and antique statues with which that country abounds.

Sandrart, who was intimately acquainted with Rubens, informs us, that he was recommended in the most honourable manner to the duke of Mantua by the archduke Albert, who had witnessed his talents in the finishing of some fine paintings designed for his own palace. At Mantua he was received by the duke with the most flattering marks of distinction, and had opportunities of improving himself which he did not neglect. Here he carefully studied the works of Julio Romano. He next visited Rome, where he had an opportunity of examining the productions of Raphael. The paintings of Titian and Paolo Veronese called him to Venice, where he accomplished himself in the art of colouring.

He continued in Italy seven years. At length receiving intelligence that his mother was taken ill, he hastened to Antwerp: but his filial affection was not gratified with a sight of her; she died before his arrival. He married soon after; but his wife dying at the end of four years, he retired from Antwerp for some time, and endeavoured to soothe his melancholy by a journey to Holland. At Utrecht he visited Hartoll, for whom he had a great value.

The fame of Rubens was now spread over Europe. He was invited by Mary of Medicis queen of Henry IV. of France to Paris, where he painted the galleries in the palace of Luxemburg. These form a series of paintings which delineate the history of Mary; and afford a convincing proof how well qualified he was to excel in allegorical and emblematical compositions. While at Paris he became acquainted with the duke of Buckingham, who was so taken with his great talents and accomplishments, that he judged him well qualified to explain to Isabella, the wife of Albert the archduke, the cause of the misunderstanding which had taken place between the courts of England and Spain. In this employment Rubens acquitted himself with such propriety, that Isabella appointed him envoy to the king of Spain, with a commission to propose terms of peace, and to bring back the instructions of that monarch. Philip was no less captivated with Rubens: He conferred on him the honour of knighthood, and made him secretary to his privy council. Rubens returned

returned to Bruſſels, and thence paſſed over into England in 1630 with a commiſſion from the Catholic king to negociate a peace between the two crowns. He was ſucceſſful in his negociation, and a treaty was concluded. Charles I. who then filled the Britiſh throne, could not receive Rubens in a public character on account of his profeſſion; nevertheleſs, he treated him with every mark of reſpect. Having engaged him to paint ſome of the apartments of Whitehall, he not only gave him a handſome ſum of money, but, as an acknowledgment of his merit, created him a knight; and the duke of Buckingham, his friend and patron, purchaſed of him a collection of pictures, ſtatues, medals, and antiques, with the ſum of L. 10,000.

He returned to Spain, where he was magnificently honoured and rewarded for his ſervices. He was created a gentleman of the king's bedchamber, and named ſecretary to the council of ſtate in the Netherlands. Rubens, however, did not lay aſide his profeſſion. He returned to Antwerp, where he married a ſecond wife called *Helena Forment*, who, being an eminent beauty, helped him much in the figures of his women. He died on 30th May 1640, in the 63d year of his age; leaving vaſt riches to his children. Albert his eldeſt ſon ſucceeded him in the office of ſecretary of ſtate in Flanders.

As Rubens was poſſeſſed of all the ornaments and advantages that render a man worthy to be eſteemed or courted, he was always treated as a perſon of conſequence. His figure was noble, his manners engaging, and his converſation lively; his learning was univerſal. Though his favourite ſtudy muſt have occupied him much, yet he found time to read the works of the moſt celebrated authors, and eſpecially the poets. He ſpoke ſeveral languages perfectly, and was an excellent ſtateſman.

His houſe at Antwerp was enriched with every thing in the arts that was rare and valuable. It contained one ſpacious apartment, in imitation of the rotunda at Rome, adorned with a choice collection of pictures which he had purchaſed in Italy; part of which he ſold to the duke of Buckingham.

His genius qualified him to excel equally in every thing that can enter into the compoſition of a picture. His invention was ſo fertile, that, if he had occaſion to paint the ſame ſubject ſeveral times, his imagination always ſupplied him with ſomething ſtriking and new. The attitudes of his figures are natural and varied, the carriage of the head is peculiarly graceful, and his expreſſion noble and animated.

He is by all allowed to have carried the art of colouring to its higheſt pitch; he underſtood ſo thoroughly the true principles of the chiaro-ſcuro, that he gave to his figures the utmoſt harmony, and a prominence reſembling real life. His pencil is mellowed, his ſtrokes bold and eaſy, his carnation glows with life, and his drapery is ſimple, but grand, broad, and hung with much ſkill.

The great excellence of Rubens appears in his grand compoſitions; for as they are to be viewed at a diſtance, he laid on a proper body of colours with uncommon boldneſs, and fixed all his tints in their proper places; ſo that he never impaired their luſtre by breaking or torturing them; but touched them in ſuch a manner as to give them a laſting force, beauty, and harmony.

It is generally allowed, that Rubens wanted correctneſs in drawing and deſigning; ſome of his figures being heavy and too ſhort, and the limbs in ſome parts not being juſtly ſketched in the outline. Though he had ſpent ſeven years in Italy in ſtudying thoſe antiques by which other celebrated artiſts had modelled their taſte; though he had examined them with ſuch minute attention as not only to perceive their beauties, but to be qualified to deſcribe them in a Diſſertation which he wrote on that ſubject: yet he ſeems never to have diveſted himſelf of that heavy ſtyle of painting, which, being peculiar to his native country, he had inſenſibly acquired. The aſtoniſhing rapidity too with which he painted, made him fall into inaccuracies, from which thoſe works that he finiſhed with care are entirely exempted.

Among his finiſhed pieces may be mentioned the Crucifixion of Jeſus Chriſt between the two Thieves, which was very lately to be ſeen at Antwerp; but of all his works the paintings in the palace of Luxemburg beſt diſplay his genius and his ſtyle.

It is the obſervation of Algarotti, that he was more moderate in his movements than Tintoretto, and more ſoft in his chiaro-ſcuro than Carravaggio; but not ſo rich in his compoſitions, nor ſo light in his touches, as Paolo Veroneſe; in his carnations leſs true than Titian, and leſs delicate than Vandyck. Yet he contrived to give his colours the utmoſt tranſparency and harmony, notwithſtanding the extraordinary deepneſs of them; and he had a ſtrength and grandeur of ſtyle entirely his own.

RUBIA, MADDER: A genus of the monogynia order, belonging to the tetrandria claſs of plants; and in the natural method ranking under the 47th order, *Stellatæ*. The corolla is monopetalous and campanulated; and there are two monoſpermous berries. There are three ſpecies, of which the moſt remarkable is the tinctorum, or dyer's madder, ſo much uſed by the dyer's and callico-printers. This hath a perennial root and annual ſtalk: the root is compoſed of many long, thick, ſucculent fibres, almoſt as large as a man's little finger; theſe are joined at the top in a head like aſparagus, and run very deep into the ground. From the upper part, or head of the root, come out many ſide-roots, which extend juſt under the ſurface of the ground to a great diſtance, whereby it propagates very faſt; for theſe ſend up a great number of ſhoots, which, if carefully taken off in the ſpring ſoon after they are above ground, become ſo many plants. Theſe roots are of a reddiſh colour, ſomewhat tranſparent; and have a yellowiſh pith in the middle, which is tough and of a bitteriſh taſte. From this root ariſe many large four-cornered jointed ſtalks, which, in good land, will grow five or ſix feet long, and, if ſupported, ſometimes ſeven or eight: they are armed with ſhort herbaceous prickles; and at each joint are placed five or ſix ſpear-ſhaped leaves: their upper ſurfaces are ſmooth: but their midrib on the under ſide is armed with rough herbaceous ſpines, and the leaves ſit cloſe to the branches in whorls. From the joints of the ſtalk come out the branches, which ſuſtain the flowers: they are placed by pairs oppoſite; each pair croſſing the other: theſe have a few ſmall leaves toward the bottom, which are by threes, and upwards by pairs oppoſite: the branches are terminated by looſe branching ſpikes of yellow flowers, which are cut into four parts reſembling ſtars. Theſe appear in June, and are ſometimes ſucceeded by ſeeds, which

Rubinska us.

which feldom ripen in England. For the manner of its cultivation and preparation for the ufe of dyers, fee the article MADDER.

Madder-root is ufed in medicine. The virtues attributed to it are thofe of a detergent and aperient; whence it has been ufually ranked among the opening roots, and recommended in obftructions of the vifcera, particularly of the kidneys, in coagulations of the blood from falls or bruifes, in the jaundice, and beginning dropfies. It is an ingredient in the icteric decoction of the Edinburgh pharmacopœia.

It is obfervable, that this root, taken internally, tinges the urine of a deep red colour; and in the Philofophical Tranfactions we have an account of its producing a like effect upon the bones of animals who had it mixed with their food: all the bones, particularly the more folid ones, were faid to be changed, both externally and internally, to a deep red; but neither the fleffy or cartilaginous parts fuffered any alterations: fome of thefe bones macerated in water for many weeks together, and afterwards fteeped and boiled in fpirit of wine, loft none of their colour, nor communicated any tinge to the liquors. This root, therefore, was concluded to be poffeffed of great fubtilty of parts, and its medical virtues hence to deferve inquiry. The fame trials, however, made by others, have not been found to produce the fame effects as thofe abovementioned.—Of late the root has come into great reputation as an emmenagogue.

RUBININSKA, one of the northern provinces of Ruffia, bounded by the province of Dwina on the north, by Syrianes on the eaft, by Belozera on the fouth, and by the lake Onega on the weft.

RUBRIC, in the canon law, fignifies a title or article in certain ancient law-books; thus called becaufe written, as the titles of the chapters in our ancient bibles are, in red letters.

RUBUS, the BRAMBLE, or *Rafpberry bufh:* A genus of the polygamia order, belonging to the icofandria claffs of plants: and in the natural order ranking under the 35th order, *Senticofæ*. The calyx is quinquefid, the petals five; the berry confifting of monofpermous acini or pulpy grains. The principal fpecies is the common rafpberry, which, with its varieties, demands culture in every garden for their fruit; particularly the common red kind, white fort, and twice-bearing rafpberry; all of which are great bearers: but for the general plantations, we choofe principally the common red and the white kind, as being generally the greateft bearers of all; planting alfo a fhare of the twice-bearing fort, both as a curiofity and for the fake of its autumnal crops of fruit, which in favourable feafons ripen in tolerable perfection; obferving to allow all the forts fome open expofure in the kitchen garden, though they will profper in almoft any fituation.

The other fpecies are confidered as plants of variety, for hardy plantations in the fhrubbery. Some of them are alfo very ornamental flowering plants; particularly the Virginian flowering rafpberry, and the double-bloffomed bramble, which have great merit as furniture for ornamental compartments; and the white-berried bramble, which is a great curiofity. All the other fpecies and varieties ferve to diverfify large collections.

Ruby.

RUBY, a genus of precious ftones of various colours; as, 1. Of a deep red colour inclining a little to purple; the *carbuncle* of Pliny. 2. The fpinell, of the colour of a bright corn poppy flower. 3. The balafs or pale red inclining to violet; fuppofed to be the mother of rubies. 4. The rubicell, of a reddifh yellow. According to Cronftedt, the ruby cryftallifes into an octoedral form, as well as the diamond, from which it differs very little in hardnefs and weight, whence he concludes that they are both of the fame nature; but fome late experiments have fhown that the diamond differs exceffively from all other gems, in being diffipable by a ftrong fire, which the others refift. Tavernier and Dutens inform us, that in the Eaft Indies all coloured gems are named *rubies*, without regard to what their colours may be; and that the particular colour is added to the name of each in order to diftinguifh them from one another. There are, however, fome foft ftones of this kind which they call *bacan;* and it is certain, that the hard and brilliant rubies named *oriental*, as well as the fapphires and topazes, are all the fame, excepting only the circumftance of colour. Some are partly red and partly blue, yellow, and fome quite colourlefs. The fpinell rubies are about half the value of diamonds of the fame weight; the balafs is valued at 30 fhillings per carat. Tavernier mentions 108 rubies in the throne of the great Mogul, from 100 to 200 carats, and of a round one almoft $2\frac{1}{4}$ ounces: there is alfo mention made by other travellers of rubies exceeding 200 carats in weight. According to Dutens, a perfect ruby, if it weighs more than $3\frac{1}{4}$ carats, is of greater value than a diamond of the fame weight. If it weighs one carat, it is worth 10 guineas; if two carats, 40 guineas; three carats, 150 guineas; if fix carats, upwards of 100 guineas.

According to the experiments of Bergman and Achard, the texture of the ruby is foliated like that of diamonds; it is fufible with borax in a ftrong and long continued heat, running into a tranfparent glafs of a pale green colour: the fame effect is produced by microcofmic falt; but with fedative falt, or mineral or vegetable alkali, the glafs is opaque and differently coloured. From the experiments of M. d'Arcet, it appears that the ruby does not lofe its colour in the greateft fire; but Henckel fays, that, by means of a burning glafs, he foftened it in fuch a manner as to receive the impreffion of a feal of jafper. It becomes electric by being rubbed. Its fpecific gravity, according to Bergman, is from 3,180 to 4,240; but Brifon tells us that it is 4,283. The fpecific gravity of the fpinell is 3,792, of the Brafilian ruby 3,531.

Rubies are met with in the Capelan mountains of Pegu in the Eaft Indies; and at Caos, Ava, Bamagar, Calicut, Cananor, Ceilan, and Brafil. They are found in the fands of rivers of a red colour, in an argillaceous earth of an hard texture and greenifh colour: fometimes they adhere to red rocks. The fpinell rubies are met with in Hungary, Silefia, Bohemia, and Brafil. The balafs comes principally from Brafil; though fome are alfo brought from the Eaft Indies. The rubicell comes alfo from Brafil, but are faid to lofe their colour in the fire. A variety of this gem; but of a foft quality, is found in great plenty on the fea-fhore near Ely in Fifefhire, Scotland. There is alfo a ftone

Ruby || Rudder.

which comes near to the ruby found near Portsoy, Banffshire, and at Inverary, Argyleshire, Scotland. The *rubino di rocca* of the Italians is a true garnet of a deep red and violet, or of the amethyst colour. What is called ruby of arsenic or of sulphur is the realgar: the ruby of zinc is the red blend; and the ruby of silver is the red silver ore.

Rubies may be artificially made from Brasilian topazes of a smoky appearance, by giving them a gradual heat in a crucible filled with ashes, until it be red-hot.

Rock Ruby, the *amethystizontas* of the ancients, is found in Syria, Calcutta, Cananor, Cambaya, and Ethiopia. It is the most valued of all the species of garnets, and is frequently sold as a ruby under the name of *rubinus Russicum*. See GARNET and RUBY.

RUCTATION, a ventosity arising from indigestion, and discharging itself at the mouth with a very disagreeable noise.

RUDBECK (Olaus), a learned Swedish physician, born of an ancient and noble family in 1630. He became professor of medicine at Upsal, where he acquired great applause by his extensive knowledge; and died in 1702. His principal works are, 1. *Exercitatio anatomica, exhibens ductus novos hepaticos aquosos, & vasa glandularum serosa*, in 4to. He there asserts his claim to the discovery of the lymphatic vessels, against the pretensions of Thomas Bartholin. 2. *Athlantica, sive Manheim, vera Japheti posterorum sedes ac patria*, 4 vols folio, is full of strange paradoxes supported with profound learning: he there endeavours to prove, that Sweden was the country whence all the ancient Pagan divinities and our first parents were derived; and that the Germans, English, French, Danes, Greeks, and Romans, with all other nations, originally came from thence.

RUDBECKIA, in botany: a genus of the polygamia frustanea order, belonging to the syngenesia class of plants; and in the natural method ranking under the 49th order, *Compositæ*. The receptacle is paleaceous and conical; the pappus consists of a quadridentate margin; the calyx of a double series of scaly leaves.

RUDDER, in navigation, a piece of timber turning on hinges in the stern of the ship, and which, opposing sometimes one side in the water and sometimes another, turns or directs the vessel this way or that. See HELM.

In the seventh volume of the Transactions of the Society instituted at London for the Encouragement of Arts, Manufactures, and Commerce, there is explained a method of supplying the loss of a ship's rudder at sea. The invention, which is Captain Pakenham's of the royal navy, has been approved by Admiral Cornwallis, the commissioners of the admiralty, by the society in whose transactions the account of it was first published, and who presented to Captain Pakenham their gold medal, by the Trinity-house, by the managing owners of East India shipping, by the duke of Sudermania the present regent of Sweden, and by the society for the improvement of naval architecture. The substitute here recommended for a lost rudder, says the inventor, is formed of those materials without which no ship goes to sea, and its construction is simple and speedy. Captain Pakenham, however, did not give a particular account of his invention to the society whom he addressed, and to whom he sent a model of his invention, till such time as he had an opportunity of reducing the theory he had conceived to practice. On the 7th of July 1788, he made this trial with the Merlin of Newfoundland; and he declares that, during the different manœuvres of tacking and wearing, he could not discover the least variation between the operation of the machine and that of the ship's rudder: she was steered with the same ease by one man, and answered the helm in every situation fully as quick. Admiral Cornwallis certifies the same with respect to the Crown of 64 guns, which lost her rudder on the Kentish Knock, when with the substitute she was steered to Portsmouth with the utmost ease in a heavy gale, and, as the admiral asserts, it would have taken her to the East Indies.

Rud

The materials and construction are thus described in the Transactions. "N° 1. a top-mast inverted; the fid-hole to ship the tiller in, and secured with hoops from the anchor stocks; the heel forming the head of the rudder. N° 2. The inner half of a jibb-boom. N° 3. The outer half of a jibb-boom. N° 4. A fish: the whole of these materials well-bolted together:—in a merchantman her ruff-tree. N° 5. A cap, with the square part cut out to fit the stern-post, and acting as a lower gudgeon, secured to the stern-post with hawsers, leading from the bolts of the cap, under the ship's bottom, into the hawse-holes, and hove well tort. N° 6. A plank, or, if none on board the ships, gangboards. N° 7. Anchor-stocks, made to fit the topmast as partners, secured to the deck, and supplying the place of the upper gudgeon, and in a merchant-ship the clamps of her windlass. N° 8. A stern-post. N° 9. Hoops from the anchor stocks. N° 10. Pigs of ballast, to sink the lower part. The head of the rudder to pass through as many decks as you wish." Plate CCCCX

On this the Captain makes the following remarks: "It might probably be supposed, that a difficulty would occur in bringing the jaws of the cap to embrace the stern-post; but this will at once be obviated, when it is remembered that the top-chains, or hawsers, leading from each end of the jaws, under the ship's bottom, are in fact a continuance of the jaws themselves. Nor can it be apprehended that the cap, when fixed, may be impelled from its station, either by the efforts of the sea, or the course of the ship through the water, tho' even the hawsers, which confine it in the first instance, should be relaxed:—the experiment proves, that the partners must be first torn away, or the main-piece broken off.

"Since the improved state of navigation, notwithstanding remedies have been found in general for the most disastrous accidents at sea, experience has evinced that nothing complete had been hitherto invented to supply the loss of a rudder. The first expedient within my knowledge were cables veered astern, with tackles leading from them to the ship's quarters. This practice was superseded by the invention of the machine usually called *the Ipswich machine*; but the construction of it is complex and unwieldy, and vessels are seldom found in possession of the materials which form it. Commodore Byron, in the Journal of his Voyage round the World, says, that the Tamer, with every assistance from his own ship, was five days in constructing it. Besides, like the before

before-mentioned scheme, it can only operate to steer a ship large (and that but very wildly), and of course, under the circumstance of a lee-shore, defeat the most skilful exertions of a seaman. Several other expedients have been adopted, which I shall not mention here, as the same defects equally appear in all.

"Thus it was apparent, that ample room was left for the discovery of some more certain resource than any of the former; and the scheme which has suggested itself to me, will, I trust, be found fully to answer the purpose intended. The materials are such as scarcely any ship can venture to sea without; and the construction so speedy, easy, and simple, that the capacity of the meanest sailor will at once conceive it. I need not, from mathematical principles, show the certainty of its effect, as it is formed and managed in the same manner as a ship's common rudder: and as the common rudder is certainly of all inventions the best calculated for guiding a vessel through the water, it will of course follow, that whatever substitute the nearest resembles that, must be best adapted to supply its loss."

RUDDIMAN (Thomas), one of the most eminent grammarians which Scotland has produced, was born in October 1674 at Ragtel, in the parish of Boyndie and county of Banff. His father James Ruddiman was a farmer, and strongly attached to the house of Stuart.

Mr Ruddiman was instructed in the principles of Latin grammar at the parish-school of Boyndie, where his application was so vigorous, and his progress so rapid, that he quickly surpassed all his class-fellows. His master George Morison, who was a skilful and attentive teacher, being unwilling to check his ardour for learning, permitted him to follow the impulse of his genius, and to advance without waiting the slow progress of the other boys.

The pleasure which the youthful mind receives from vivid description, though wild and romantic, approaches to ecstacy, and often makes an impression which remains indelible. While at school, the first book which charmed the opening mind of Ruddiman was Ovid's Metamorphoses; nor did he cease to relish the beauties of this author when his judgment was mature, for during the rest of his life Ovid was his favourite poet.

At the age of sixteen he became anxious to pursue his studies at the university; but his father thinking him too young, opposed his inclination. Hearing of the competition trial, which was annually held at King's college, Aberdeen, for a certain number of bursaries on the foundation of that university, Ruddiman's ambition was kindled. Without the knowledge of his father, and with only a single guinea in his pocket, which his sister had privately given him, he set out for that place. On the road he was met by a company of gypseys, who robbed him of his coat, his shoes, his stockings, and his guinea. This misfortune did not damp his enterprising spirit: He continued his journey to Aberdeen, presented himself before the professors as a candidate; and though he had neither clothes to give him a decent appearance nor friends to recommend him, he gained the first prize.

After attending the university four years, he obtained the degree of master of arts; an honour of which he was always proud. The thesis says, the disputation on this occasion lasted *ab aurora usque ad vesperum*, i. e. "from morning till night." Tho' Ruddiman was only twenty years of age when he left the university, it appears from a book intitled *Rudimenta Latinitatis*, composed before this period, but never published, that he had then read the Roman classics with uncommon attention and advantage.

He was soon after engaged as a tutor to the son of Robert Young, Esq; of Auldbar, the great grandson of Sir Peter Young, who under the direction of Buchanan had been preceptor of James VI. His income here must have been very small, or his situation unpleasant; for within a year he accepted the office of schoolmaster in the parish of Laurence-kirk. The profession of schoolmaster in a country-parish at that period could open no field for ambition, nor prospect of great emolument; for by an act of parliament passed in 1633, the salary appropriated to this office could not be increased above 200 merks Scots, or L. 11 : 2 : 2 sterling. In discharging the duties of this laborious but important station, it is probable that he used Simson's *Rudimenta Grammatica*, which was then generally taught in the northern schools, and by which he himself had been instructed in the principles of Latin grammar.

When Ruddiman had spent three years and a half in this employment, the celebrated Dr Pitcairne happening to pass through Laurence-kirk, was detained in that village by a violent storm. Pitcairne wanting amusement, inquired at the hostess if she could procure any agreeable companion to bear him company at dinner. She replied, that the schoolmaster, the young, was said to be learned, and, though modest, she was sure could talk. Pitcairne was delighted with the conversation and learning of his new companion, invited him to Edinburgh, and promised him his patronage.

When Ruddiman arrived in Edinburgh, the advocates library, which had been founded eighteen years before by Sir George Mackenzie, attracted his curiosity and attention, and he was soon after appointed assistant-keeper under Mr Spottiswoode the principal librarian. His salary for executing this laborious office was L. 8 : 6 : 8. He had besides a small honorary present from those who were admitted advocates for correcting their theses: he was also paid for copying manuscripts for the use of the library. And the faculty, before he had held the office two years, were so highly pleased with his conduct, that they made him a present of 50 pounds Scots, or L. 2 : 3 : 4 Sterling.

During the sitting of the court of session he attended the library from ten till three. But this confinement did not prevent him from engaging in other laborious duties: A part of his time was occupied in teaching young gentlemen the Latin language. Some he attended at their lodgings, some waited upon him, and some resided in his own house. An exact list of the names of those who attended him, expressing the date of their entry, and the sums which he was to receive from each, has been found in his pocket-book; a curious relick which is still preserved.

When Ruddiman's merit as a scholar became better known, his assistance was anxiously solicited by those who were engaged in literary publications. Freebairne, a respectable bookseller of that period, prevailed upon him to correct and prepare for the press Sir Robert Sibbald's [illegible] *rum in eu Borealis Britanniæ parte quæ [illegible]*

Ruddiman

Picticum est. He received for his labour L. 3 Sterling. At the request of Mr Spottiswoode librarian, for L. 5 Sterling he contributed his aid to the publication of Sir Robert Spottiswoode's Practiques of the Laws of Scotland.

In 1707 he commenced auctioneer, an employment not very suitable to the dignified character of a man of letters: but to this occupation he was probably impelled by necessity; for upon balancing his accounts at the end of the preceding year, the whole surplus was L. 28, 2s. with prospects of L. 236 : 7 : 6 Scots. Ruddiman had a family; and seems to have been a stranger to that foolish pride which has seduced some literary men into the opinion, that it is more honourable to starve than have recourse to an occupation which men of rank and opulence are accustomed to despise. The same year he published an edition of *Volusení de Animi Tranquillitate Dialogus*, to which he prefixed the life of Volusenus. Volusenus or Wilson was a learned Scotsman, and had the honour to be patronised by Cardinal Wolsey (see WILSON). In 1709 he published *Johnstoni Cantici Solomonis Paraphrasis Poetica*, and *Johnstoni Cantica* with notes, which he dedicated in verse to his friend and patron Dr Pitcairne. The edition consisted of 200 copies. The expence of printing amounted to L. 5, 10 s. Sterling, and he sold them at a shilling each copy.

The philological talents of Ruddiman were next directed to a more important object, in which they became more conspicuous and useful. Freebairne the bookseller proposed to publish a new edition of the Scottish translation of Virgil's Æneid by Gawin Douglas bishop of Dunkeld. Of the contributions which some eminent characters of the age presented, the most valuable were supplied by Ruddiman. Freebairne acknowledged in general terms this obligation, but has not done him the justice to inform the reader what these valuable contributions were, and Ruddiman's modesty restrained him from publicly asserting his claim. From the pocket-book which has been already mentioned, it appears that Ruddiman corrected the work and wrote the glossary; and there is strong reason to believe that he was the author of the 42 general rules for assisting the reader to understand the language of Douglas. To those who wish to be acquainted with the ancient language of this island, the glossary will be a treasure, as it forms a compendious dictionary of the Anglo-Saxon. For this elaborate work Ruddiman was allowed L 8 : 6 : 8 Sterling.

The reputation of Ruddiman had now extended to a distance. He was invited by the magistrates of Dundee to be rector of the grammar-school of that town; but the faculty of advocates, anxious to retain him, augmented his salary to L. 30 : 6 : 8 Sterling, and he declined the offer.

In 1711 he assisted Bishop Sage in publishing Drummond of Hawthornden's works; and performed the same favour to Dr Abercrombie, who was then preparing for the press his Martial Atchievements.

In 1713 he was deprived of his friend Dr Pitcairne. On this occasion he testified all the respect which friendship could inspire to the memory of his deceased patron and surviving family. He composed Pitcairne's epitaph, and conducted the sale of his library, which was disposed of to Peter the Great.

In 1714 the Rudiments of the Latin tongue were published. Eighteen or nineteen Latin grammars, composed by Scotchmen, had appeared before this period; yet such is the intrinsic value of this little treatise, that it soon superseded all other books on the subject, and is now taught in all the grammar-schools in Scotland. It has also been translated into other languages.

He was next called upon to publish the works of Buchanan. The value of these he enhanced much by an elaborate preface, his *Tabula Regum Scotiæ Chronologica*, and *Propriorum Nominum Interpretatio*. The interpretation of proper names was highly requisite; for Buchanan has so disguised them in the Roman dress, that the original name is scarcely discernible; and the preface puts the reader on his guard against the chronological errors and factious spirit of the history. Ruddiman also added a learned dissertation, intitled *De Metris Buchananæis Libellus*, and subjoined annotations critical and political on the History of Scotland. As he espoused the cause of Queen Mary, he raised against himself an host of enemies, and gave occasion to that celebrated controversy which has been carried on with much keenness and animosity, and with little intermission, even to the present times. For this work Ruddiman was promised L. 40 Sterling.

He had now been so long accustomed to superintend the press, that he was led to form the plan of erecting a printing-office himself (A). Accordingly, in the year 1715, he commenced printer in partnership with his brother Walter, who had been regularly bred to the business. Some years after he was appointed printer to the university, along with James Davidson bookseller.

The first literary society formed in Scotland was instituted in the year 1718. It probably derived its origin from the factious and turbulent spirit of the times. The learned, anxious perhaps to find some respite from the political dissensions of the day, endeavoured to procure it in elegant amusement; for one of the fundamental articles of the new association was, that the "affairs of church and state should not be introduced." Ruddiman and the masters of the high-school had the honour to found this society. They were afterwards joined by Lord Kaimes.

In 1725 the first part of his *Grammaticæ Latinæ Institutiones*, which treated of etymology, was published. The second part, which explained the nature and principles of syntax, appeared in 1731. He also wrote a third part on prosody, which is said to be more copious and correct than any other publication on the subject. When urged to give it to the public, he said dryly, "The age has so little taste, the sale would not pay the expence." Of this work he published an abridgement,

(A) It has long been an object of curiosity to ascertain the time at which the art of printing was introduced into Scotland. Mr Robertson, the keeper of the records, has lately discovered a patent of King James IV. which renders it certain that a printing-press was first established at Edinburgh during the year 1507, 30 years after Caxton had brought it into England. See PRINTING, p. 522.

ment, to which he subjoined an abstract of his prosody.

Ruddiman next engaged in the management of a newspaper, an employment for which his genius and industry seemed to render him well qualified. But those who should expect either much information or amusement from this publication, would perhaps be greatly disappointed. The newspaper which he conducted was the Caledonian Mercury, and was established in 1720 by William Rolland a lawyer. Ruddiman acted only in the capacity of printer for five years; but upon the death of Mr Rolland in 1729, the property was transferred to him, or to his brother Walter and him conjunctly. This paper continued in the family of Ruddiman till the year 1772, when it was sold by the trustees of his grandchildren to Mr John Robertson.

The Caledonian Mercury was at first printed three times a week, on Monday, Tuesday, and Thursday, in a small 4to of four pages, with two columns in each page, and 50 lines in each column; so that the whole paper contained only 400 lines. It now contains in its folio size 2480 lines.

Mr Ruddiman, after the death of Mr Spottiswoode librarian, remained for some time in his former station; but was at length appointed keeper of the library, tho' without any increase of salary; and some years after Mr Goodal, the defender of Queen Mary, succeeded him in the office of sub-librarian.

The assiduous application of Ruddiman, supported by such learning, was intitled to wealth, which now indeed flowed upon him in what was at that period deemed great abundance. On the 1st of October 1735, it appeared from an exact statement of his affairs, that he was worth L. 1882 : 5 : 2 Sterling; and on the 20th of May, the ensuing year, his wealth had increased to L. 1985 : 6 : 3 Sterling. In 1710 he valued his effects at L. 24 : 14 : 9 Sterling.

In 1737 the schoolmasters and teachers in Edinburgh formed themselves into a society, in order to establish a fund for the support of their wives and children. Of this scheme Ruddiman was an active promoter, and was chosen treasurer. Perhaps it was this association which in 1742 gave the idea to the Scots clergy of forming their widows fund.

In 1739 he published *Selectus Diplomatum et Numismatum Scotiæ Thesaurus*. This work was projected and begun by Anderson (hence called *Anderson's Diplomata*), but was finished by Ruddiman. The preface, which is an excellent commentary on Anderson's performance, was written by Ruddiman, and displays a greater extent of knowledge than any of his other productions.

As Ruddiman had imbibed from his father those political principles which attached him to the family of Stuart, he probably did not remain an unconcerned spectator of the civil commotions which in 1745 agitated Scotland. He did not, however, take any active part in the rebellion. His principles, he has been heard to say, induced him to be a quiet subject and a good citizen. He retired to the country during the summer of 1745; and while his fellow-citizens were spilling each others blood, he was more happily engaged in writing Critical Observations on Burman's Commentaries on Lucan's Pharsalia. The Caledonian Mercury was in the mean time marked with a jealous eye. His son, who had for some time been the principal manager of that newspaper, having copied a paragraph which was reckoned seditious from an English paper, was imprisoned. The solicitation of his father procured his release: but it was too late; for the unhappy young man had contracted a distemper in the tolbooth of Edinburgh which brought him to his grave.

During the last seventeen years of his life Ruddiman was almost incessantly engaged in controversy. To this he was in some measure compelled by the violent attacks which some critics of the times had successively made upon his works. He was first called upon by Benson, auditor in the exchequer, to determine the comparative merit of Buchanan and Johnston as poets. He gave a decided preference to Buchanan in perspicuity, purity, and variety of style; but, like a candid critic, allowed Johnston to be superior in the harmony of his numbers. His next antagonist was Logan, one of the ministers of Edinburgh, a weak illiterate man, but an obstinate polemic. The subject of contest was, whether the crown of Scotland was strictly hereditary, and whether the birth of Robert III. was legitimate? Ruddiman maintained the affirmative in both points, and certainly far surpassed his antagonist in the powers of reasoning. He proved the legitimacy of Robert by the public records of the kingdom with a force of argument which admits of no reply; but in discussing the first question (by which he was led to consider the contest between Bruce and Baliol) he was not so successful: for there are many instances in the history of Scotland in which the brother succeeded to the crown in preference to the son. He showed, however, that the Scottish crown was at no period properly elective; and that, according to the old licentious constitution of the kingdom, the right of Bruce, who was the nearest in blood to the royal stock, was preferable to the claim of Baliol though descended from the eldest daughter.

But the labours of Ruddiman did not end when the pen dropt from the feeble hand of Logan. He was soon called upon to repel the attacks of Love schoolmaster of Dalkeith, who maintained, in opposition to him, that Buchanan had neither repented of his treatment of Queen Mary, nor had been guilty of ingratitude to that princess. That Buchanan ever repented there is reason to doubt. Whether he was guilty of ingratitude, let the unbiassed determine, when they are assured by authentic records that Mary conferred on him a pension for life of 500 pounds Scots.

When Ruddiman had arrived at his eightieth year, and was almost blind, he was assailed by James Man, master of an hospital at Aberdeen, with a degree of rancour and virulence, united with some learning and ability, which must have touched him in a sensible manner, and alarmed his fears for his reputation after his decease. He was called a *foolish pedant*, a *furious calumniator*, and a *corrupter of Buchanan's works*. The venerable old man again put on his armour, entered the lists, and gained a complete victory. Man, with all his acuteness, could only point out twenty errors in two folio volumes. Some of these were typographical, some trifling, and some doubtful. Ruddiman, with much pleasantry, drew up against Man an account of 469 errors, consisting of 14 articles, of which two or three may be produced as a specimen. 1. Falsehoods and prevarications, 20. 2. Absurdities, 69. 3. Passages from classic

classic authors which were misunderstood by Man, 1c. The triumph which he gained over this virulent adversary he did not long enjoy; for he died at Edinburgh on the 19th of January 1757, in the 83d year of his age, and was buried in the Grey Friars churchyard without any monument to distinguish his grave.

He was three times married, but left behind him only one daughter, Alison, who was married in 1747 to James Stewart, Esq. He is supposed to have died worth L. 300 Sterling.

He was of the middle size, of a thin and straight make, and had eyes remarkably piercing. Of his talents and learning his works afford the most satisfactory proofs. His memory was tenacious and exact. He could repeat long passages of his favourite poet Ovid, to the amount of 60 lines, and without omitting a word. He was so great a master in the Latin language, that he has perhaps been equalled by none since the days of Buchanan.

Ruddiman has left a character unstained by vice, and distinguished by many virtues. His piety was exemplary. He spent Sunday in religious employment; and we are informed had prayers read to him every morning by his amanuensis when the infirmities of age required such an assistant. He was frugal of his time, neither indolent nor fond of amusement; and so remarkably temperate, that it is said he was never intoxicated. Though often forced into controversy, and treated with insolence, he never descended to scurrility and abuse, nor cherished resentment against his enemies. His candour was much admired in one instance in the favourable character which he published in the Caledonian Mercury of his antagonist Love (B), after his decease. Upon the whole, it must be allowed that Ruddiman has been of great service to classical literature, and an honour to his native country.

RUDESHEIM, a rich village of the Rhinegau, situated about five miles from the city of Mentz, contains about 2500 inhabitants. The wine of this place is looked upon as without comparison the best of the Rhinegau, and consequently of all Germany. Baron Riesbeck says, he found it much more fiery than that of Hochheim; but that for pleasantness of taste there is no comparison betwixt them. The best Rudesheim, like the best Hochheimer, sells upon the spot for three guilders the bottle. "You can (says our author) have no tolerable wine here for one guilder, nor any very good for two; at least I should prefer the worst Burgundy I ever tasted to any Rudesheimer I met with either here or at Mentz for these prices. Indeed the wine of our host (a rich ecclesiastic) was far better than any we could get at the inn. It stands to reason, that the same vintage furnishes grapes of very different degrees of goodness; but besides this, it is in the Rhinegau as every where else. The best wines are generally sent abroad by the poor and middling inhabitants, and the worst kept for internal consumption; for the expence of the carriage being the same in both cases, strangers had much rather pay a double price for the good than have the bad. It is only rich people, such as our host was, who can afford to keep the produce of their land for their own drinking. Upon this principle, I have eaten much better Swiss cheeses out of Switzerland than in it, and have drank much better Rhenish in the inns of the northern parts of Germany than in the country where the wine grows. The position of the country also contributes to render the wine dearer than it would otherwise be. As the best wine grows in its more northern parts, the easy transport by the Rhine to Holland, and all parts of the world, raises its price above its real value. The place where the flower of the Rudesheim wine grows is precisely the neck of the land, formed by the winding of the Rhine to the north, after it has run to the westward from Mentz hither. This neck, which is a rock almost perpendicular, enjoys the first rays of the rising and the last of the setting sun. It is divided into small low terraces, which are carried up to the utmost top of the hill like steep stairs; these are guarded by small walls and earthen mounds, which are often washed away by the rain. The first vine was brought hither from France, and they still call the best grape the Orleannois. They plant the vine stocks very low, scarce ever more than four or five feet high. This way of planting the vine is favourable to the production of a great deal of wine, but not to its goodness, as the phlegmatic and harsh parts of it would certainly evaporate more, if the sap was refined through higher and more numerous canals. This is undoubtedly the reason why every kind of Rhenish has something in it that is harsh, sour, and watery. The harvest of the best vineyards, which are the lower ones, in the above-mentioned neck of land, is often bought before-hand, at the advanced price of some ducats, by Dutch and other merchants. It must be a very rich stock to yield above four measures of wine.—You may easily imagine, that the cultivation of vineyards must be very expensive in this country, as the dung, which is extremely dear, must be carried up to the top of the mountains on the peasants shoulders"

RUDIMENTS, the first principles or grounds of any art or science, called also the elements thereof.

RUE, in botany. See RUTA.

RUE (Charles de la), a French orator and poet, was born at Paris in 1643. He was educated at the college of the Jesuits, where he afterwards became a professor of humanity and rhetoric. At an early age his talent for poetry disclosed itself. In 1667, when he was only 24 years old, he composed a Latin poem on the conquests of Louis XIV. which was so much esteemed by the

(B) The following character of Love was published in the Caledonian Mercury of the 24th of September 1757. "On Thursday morning died at Dalkeith, after a lingering illness, in the 55th year of his age, Mr John Love, rector of the grammar-school there; who, for his uncommon knowledge in classical learning, his indefatigable diligence, and strictness of discipline without severity, was justly accounted one of the most sufficient masters in this country." This character is doubtless just; though Love is now known to have been the schoolmaster satirized by Smollet in the beginning of his Roderick Random.

the celebrated Peter Corneille, that he translated it into French, presented it to the King, and at the same time passed so high encomiums on the superior merit of the original, that the author was received into the favour of that monarch, and ever after treated by him with singular respect.

De la Rue, anxious to preach the gospel to the Canadians, requested leave of absence from his superiors; but having destined him for the pulpit, they refused to comply with his request. Accordingly he commenced preacher, and became one of the most eminent orators of his age. In his discourses he would probably have been too lavish of his wit, if he had not been cautioned against it by a judicious courtier "Continue (said he) to preach as you do. We will hear you with pleasure as long as you reason with us; but avoid wit. We value the wit contained in two verses of a song more than all that is contained in most of the sermons in Lent."

Respecting the delivery of sermons, he entertained an opinion quite opposite to the established practice of his countrymen. In France it was customary not to read sermons from the pulpit, but to recite them from memory. This he considered as a laborious task not compensated by any advantages. On the contrary, he was of opinion that reading sermons was preferable. — The preacher, with his discourse before him, could read it with ease, free from that timidity and embarrassment which frequently attends the act of recollection; and he would save a considerable time which is usually spent in committing it to memory. In these sentiments many will not be disposed to acquiesce: but, without pretending to determine the question, it may be asserted, that a sermon, whether read or recited, if spoken in a serious manner, and with proper inflections and tones of voice, will produce all the effects for which a sermon is calculated.

De la Rue died at Paris on the 27th of May 1725, at the age of 82.

He was as amiable in society as he was venerable in the pulpit. His conversation was pleasant and instructive. His taste and knowledge enabled him to converse with ease, and to express himself with propriety on every subject. He charmed his superiors by his wit, and his inferiors by his affability. Though living amidst the bustle of the world, he was always prepared for the solitude of the closet and the retreat of the cloister. In the pulpit he poured forth the finest effusions of eloquence in the most animated and impressive manner.— He published Panegyrics, Funeral Orations, and Sermons. His best sermon is that intitled *Des Calamités Publiques*, and his most admired funeral oration was composed on the Prince of Luxemburg. There are also tragedies of his writing, both in Latin and French, which were approved by Corneille. He was one of those who published editions of the classics for the use of the Dauphin. Virgil, which fell to his share, was published with notes, and a Life of the Poet, in 1675, 4to, and is a valuable and useful edition.

RUELLIA, in botany: A genus of the angiospermia order, belonging to the didynamia class of plants; and in the natural method ranking under the 40th order, *Personatæ*. The calyx is quinquepartite; the corolla sub-campanulated: the stamina approaching together in pairs; the capsule springing asunder by means of its elastic segments.

RUFF, in ichthyology; a species of Perca.

Ruff, in ornithology, a species of Tringa.

RUFFHEAD (Dr Owen), was the son of his Majesty's baker, in Piccadilly; who having a lottery ticket for him in his infancy, which happened to be drawn a prize of 30 l. this fine was applied to procure him for the law. He accordingly entered in the Middle Temple; and formed to well the views of his father, that he became a good lawyer and an eminent barrister. While he was [illegible] pamphlets on temporary [illegible] distinguished by his [illegible] *Large*, in 4to. He [illegible] more as a chamber counsellor [illegible] ment than as a pleader; [illegible] the vanity of works he [illegible] author, to impair his constitution, that after the [illegible] exertion of his abilities to defend the conduct of administration toward Mr Wilkes, by a pamphlet intitled, "The Case of the late election for the county of Middlesex considered," he was prevented from receiving the reward of a place in the Treasury, by dying in 1769 at about 46 years of age. Some time before his death, bishop Warburton engaged him to write his long promised *Life of Alexander Pope*; which, however, when executed, was very far from giving general satisfaction. The author attributed his ill success to the deficiency of his materials; while the public seemed rather to be of opinion that, as a lawyer, he ventured beyond his proper line, when he assumed the task of a critic in poetry.

RUFFLING, or Ruffing, a beat on the drum. Lieutenant-generals have three ruffles, major-generals two, brigadiers one, and governors one, as they pass by the regiment, guard, &c.

RUFINUS was born about the middle of the fourth century at Concordia, an inconsiderable town in Italy. At first he applied himself to the belles lettres, and particularly to the study of eloquence. To accomplish himself in this elegant art, he removed to Aquileia, a town at that time so celebrated that it was called the second Rome. Having made himself acquainted with the polite literature of the age, he withdrew into a monastery, where he devoted himself to the study of theology. While thus occupied, St Jerome happened to pass through Aquileia. Rufinus formed an intimate friendship with him; but to his inexpressible grief was soon deprived of the company of his new friend, who continued his travels through France and Germany, and then set out for the east. Rufinus, unable to bear [illegible] absence, resolved to follow him. Accordingly he embarked for Egypt; and having visited the solitaries who inhabit the deserts of that country, he repaired to Alexandria to hear the renowned Didymus. Here he was gratified with a sight of St Melania, of whose virtue and sanctity he had heard much. The sanctity of his manners soon obtained the confidence of St Melania, with [illegible] without interruption during their residence in the east, a period of 30 years. The Arians, who swayed the ecclesiastical sceptre in the reign of Valens, persecuted Rufinus with great cruelty. They threw him into a dungeon, loaded him with chains, and after almost starving him to death, banished him to the deserts of Palestine. From this exile he was relieved by the pecuniary aid of St Melania, who employed her wealth in ransoming those

confessors who had been condemned to prison or banishment.

St Jerome, supposing that Rufinus would immediately proceed to Jerusalem, wrote to one of his friends there, congratulating him on the prospect of so illustrious a visitor. To Jerusalem he went, and having built a monastery on the Mount of Olives, he there assembled a great number of hermits, whom he animated to virtue by his exhortations. He converted many to the Christian faith, and persuaded more than 400 hermits who had taken part in the schism of Antioch to return to the church. He prevailed on many Macedonians and Arians to renounce their errors.

His attachment to the opinions of Origen set him at variance with St Jerome, who, being of a temper peculiarly irritable, not only retracted all the praises which he had lavished upon him, but loaded him with severe reproaches. Their disputes, which were carried to a very indecent height, tended to injure Christianity in the eyes of the weak. Theophilus, their mutual friend, settled their differences; but the reconciliation was of short continuance. Rufinus having published a translation of the principles of Origen at Rome, was summoned to appear before Pope Anastasius. But he made a specious apology for not appearing, and sent a vindication of his work, in which he attempted to prove that certain errors, of which Origen had been accused, were perfectly consistent with the opinions of the orthodox. St Jerome attacked Rufinus's translation. Rufinus composed an eloquent reply, in which he declared that he was only the translator of Origen, and did not consider himself bound to sanction all his errors. Most ecclesiastical historians say that Rufinus was excommunicated by Pope Anastasius; but for this no good evidence has been brought. In 407, he returned to Rome; but the year after, that city being threatened by Alaric, he retired to Sicily, where he died in 410.

His works are, 1. A Translation of Josephus; 2. A Translation of several works of Origen; 3. A Latin Version of Ten Discourses of Gregory Nazianzen, and Eight of Basil's; 4. Chromatius of Aquileia prevailed on him to undertake a Translation of the Ecclesiastical History of Eusebius, which engaged him almost ten years. He made many additions to the body of the work, and continued the history from the 20th year of Constantine to the death of Theodosius the Great. Many parts of this work are negligently written, many things are recorded as facts without any authority but common report, and many things of great importance are entirely omitted. 5. A Vindication of Origen. 6. Two Apologies addressed to St Jerome. 7. Commentaries on the prophets Hosea, Joel, and Amos. 8. Lives of the Hermits. 9. An Explanation of the Creed.

RUGEN, an island in the Baltic Sea, on the coast of Pomerania, over against Stralsund, about 23 miles in length and 15 in breadth, with the title of a principality. It is strong both by art and nature, abounds in corn and cattle, and belongs to Sweden. The chief town is Bergen. E. Long. 14. 30. N. Lat. 54. 32.

RUINS, a term particularly used for magnificent buildings fallen into decay by length of time, and whereof there only remains a confused heap of materials. Such are the ruins of the tower of Babel, of the tower of Belus, two days journey from Bagdat, in Syria, on the banks of the Euphrates; which are now no more than a heap of bricks, cemented with bitumen, and whereof we only perceive the plan to have been square. Such also are the ruins of a famous temple, or palace, near Schiras, in Persia, which the antiquaries will have to have been built by Ahasuerus, and which the Persians now call Tchelminar, or Chelminar; *q. d.* the 40 columns; because there are so many columns remaining pretty entire, with the traces of others; a great quantity of basso-relievos, and unknown characters, sufficient to shew the magnificence of the antique architecture. The most remarkable ruins now existing of whole cities are those of PALMYRA and PERSEPOLIS, of the grandeur of which some idea may be formed from the views given in the plates referred to from these articles, to which may be added those of HERCULANEUM and POMPEIUM. The magnificent ruins still remaining in Rome, Athens, &c. of particular edifices, as temples, palaces, amphitheatres, aqueducts, baths, &c. it were endless to enumerate, and beyond the plan of this work to represent.

RUIZIA, in botany: A genus of the polyandria order, belonging to the monodelphia class of plants; and in the natural method ranking under the 37th order, *Columniferæ*. The calyx is double; the external are triphyllous; the internal are parted into five. The corolla consists of five petals, inclining to the right hand side, and adhering to the stamina, which are from 30 to 40. It has ten styli, and as many capsulæ. These are compressed and membranous. In each capsule are two seeds. There are four species, viz. 1. *Cordata*; 2. *Lobata*; 3. *Palmata*; 4. *Lacinata*, all natives of Asia and the Cape of Good Hope.

RULE, in matters of literature, a maxim, canon, or precept, to be observed in any art or science.

RULE, in a monastic sense, a system of laws or regulations, whereby religious houses are governed, and which the religious make a vow, at their entrance, to observe. Such are the rules of the Augustins, Benedictins, Carthusians, Franciscans, &c. See AUGUSTINS, &c.

RULES of Court, in law, are certain orders made from time to time in the courts of law, which attorneys are bound to observe, in order to avoid confusion; and both the plaintiff and defendant are at their peril also bound to pay obedience to rules made in court relating to the cause depending between them,

It is to be observed, that no court will make a rule for any thing that may be done in the ordinary course; and that if a rule be made, grounded upon an affidavit, the other side may move the court against it, in order to vacate the same, and thereupon shall bring into court a copy of the affidavit and rule. On the breach and contempt of a rule of court an attachment lies; but it is not granted for disobedience to a rule, when the party has not been personally served; nor for disobeying a rule made by a judge in his chamber, which is not of force to ground a motion upon, unless the same be entered.

A rule of court is granted every day the courts at Westminster sit, to prisoners of the King's-bench or Fleet prisons, to go at large about their private affairs.

RULE of Three. See ARITHMETIC and PROPORTION.

RULE, or *Ruler*, an instrument of wood or metal, with several lines delineated on it; of great use in prac-

practical menſuration. When a ruler has the lines of chords, tangents, ſines, &c. it is called a *plane ſcale*.

RUM, a ſpecies of brandy or vinous ſpirits, diſtilled from ſugar-canes.

Rum, according to Dr Shaw, differs from ſimple ſugar-ſpirit, in that it contains more of the natural flavour or eſſential oil of the ſugar-cane; a great deal of raw juice and parts of the cane itſelf being often fermented in the liquor or ſolution of which the rum is prepared. The unctuous or oily flavour of rum is often ſuppoſed to proceed from the large quantity of fat uſed in boiling the ſugar; which fat, indeed, if coarſe, will uſually give a ſtinking flavour to the ſpirit in our diſtillations of the ſugar liquor or waſh, from our refining ſugar-houſes; but this is nothing of kin to the flavour of the rum, which is really the effect of the natural flavour of the cane.

The method of making rum is this: When a ſufficient ſtock of the materials are got together, they add water to them, and ferment them in the common method, though the fermentation is always carried on very ſlowly at firſt; becauſe at the beginning of the ſeaſon for making rum in the iſlands, they want yeaſt or ſome other ferment to make it work: but by degrees, after this, they procure a ſufficient quantity of the ferment, which riſes up as a head to the liquor in the operation; and thus they are able afterwards to ferment and make their rum with a great deal of expedition, and in large quantities.

When the waſh is fully fermented, or to a due degree of acidity, the diſtillation is carried on in the common way, and the ſpirit is made up proof: though ſometimes it is reduced to a much greater ſtrength, nearly approaching to that of alcohol or ſpirit of wine; and it is then called *double-diſtilled rum*. It might be eaſy to rectify the ſpirit, and bring it to much greater purity than we uſually find it to be of: for it brings over in the diſtillation a very large quantity of the oil; and this is often ſo diſagreeable, that the rum muſt be ſuffered to lie by a long time to mellow before it can be uſed; whereas, if well rectified, it would grow mellow much ſooner, and would have a much leſs potent flavour.

The beſt ſtate to keep rum in, both for exportation and other uſes, is doubtleſs that of alcohol or rectified ſpirit. In this manner it would be tranſported in one half the bulk it uſually is, and might be let down to the common proof-ſtrength with water when neceſſary: for the common uſe of making punch, it would likewiſe ſerve much better in the ſtate of alcohol; as the taſte would be cleaner, and the ſtrength might always be regulated to a much greater exactneſs than in the ordinary way.

The only uſe to which it would not ſo well ſerve in this ſtate, would be the common practice of adulteration among our diſtillers; for when they want to mix a large portion of cheaper ſpirit with the rum, their buſineſs is to have it of the proof-ſtrength, and as full of the flavouring oil as they can, that it may drown the flavour of the ſpirits they mix with it, and extend its own. If the buſineſs of rectifying rum was more nicely managed, it ſeems a very practicable ſcheme to throw out ſo much of the oil, as to have it in the fine light ſtate of a clear ſpirit, but lightly impregnated with it: in this caſe it would very nearly reſemble arac, as is proved by the mixing a very ſmall quantity of it with a taſteleſs ſpirit, in which caſe the whole bears a very near reſemblance to arac in flavour.

Rum is uſually very much adulterated in Britain; ſome are ſo bare-faced as to do it with malt-ſpirit; but when it is done with molaſſes ſpirit, the taſtes of both are ſo nearly allied, that it is not eaſily diſcovered. The beſt method of judging of it is by ſetting fire to a little of it; and, when it has burnt away all the inflammable part, examining the phlegm both by the taſte and ſmell.

Rum is a conſiderable iſland, one of the Hebrides, or rather one continued rock, of nearly 30 miles in circumference. It is the property of Mr Maclean of Coll; contains 300 inhabitants; grazes cattle and ſheep; pays 200 l. rent annually: but has neither kelp, freeſtone, nor lime.

RUMELIA, in geography, the ſame with ancient Greece; now a part of Turkey in Europe.

RUMEN, the paunch, or firſt ſtomach of ſuch animals as chew the cud; thence called *Ruminant Animals*. See *Comparative Anatomy*, n° 92, &c.

RUMEX, Dock, in botany: A genus of the trigynia order, belonging to the hexandria claſs of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. The calyx is triphyllous; there are three connivent petals, and one triquetrous ſeed. There are 27 ſpecies; of which the moſt remarkable are,

1. The patientia, commonly called *patience rhubarb*. This was formerly much more cultivated in the Britiſh gardens than at preſent: the roots of this have been generally uſed for the monk's rhubarb, and has even been thought to be the true kind; but others ſuppoſe the ſecond ſort ſhould be uſed as ſuch. The root is large, and divides into many thick fibres; their outer cover is brown, but they are yellow within, with ſome reddiſh veins; the leaves are broad, long, and acute-pointed; their footſtalks are of a reddiſh colour; the ſtalks riſe ſix or ſeven feet high, and divide towards the top into ſeveral erect branches garniſhed with a few narrow leaves terminating with looſe ſpikes of large ſtaminous flowers. Theſe appear in June, and are ſucceeded by pretty large three-cornered ſeeds, whoſe coverings are entire, which ripen in autumn.

2. The alpinus, or monk's rhubarb, grows naturally on the Alps, but has long been cultivated in the gardens of this country. This hath large roots which ſpread and multiply by their offſets: they are ſhorter and thicker than the former, are of a very dark brown on the outſide, and yellow within. The leaves are of the round heart-ſhape, ſtanding upon long footſtalks. The ſtalks riſe from two to three feet high; they are thick, and have a few ſmall roundiſh leaves on the lower part; but the upper part is cloſely garniſhed with ſpikes of white flowers ſtanding erect cloſe to the ſtalks. Theſe appear in the latter end of May, and are ſucceeded by large triangular ſeeds which ripen in Auguſt.

3. The aquaticus, or water-dock, grows naturally in ponds, ditches, and ſtanding waters, in many parts of Britain. It is ſuppoſed to be the herba Britannica of the ancients. It hath large roots which ſtrike deep into the looſe mud, ſending out leaves which are above two feet long. The ſtalks riſe five or ſix feet high when the plants grow in water, but in dry land ſeldom more than three: theſe are garniſhed with narrow leaves,

leaves among the ſpikes of flowers to the top. The flowers ſtand upon ſlender footſtalks, which are reflexed: they are of an herbaceous colour, appear in June, and the ſeeds ripen in autumn.

4. The acutus, or ſharp-pointed dock, (the oxylapathum of the ſhops); but the markets are ſupplied with roots of the common docks which are indifferently gathered by thoſe who collect them in the fields, where the kind commonly called *butter dock* (from its leaves being uſed to wrap up butter) is much more common than this. The roots of this are ſlender, and run downright, ſending out a few ſmall fibres; the ſtalks riſe about two feet high, garniſhed at bottom with leaves four inches long, and one and an half broad in the middle. They are rounded at their baſe, where they are ſlightly indented, but end in acute points. From the joints of the ſtalks come out alternately long footſtalks, which ſuſtain the ſpikes of flowers, which grow in ſmall whorls round the ſtalks, at about an inch diſtant.

Theſe plants are but ſeldom cultivated; and ſo eaſily multiply by their numerous ſeeds, that they ſoon become troubleſome weeds where they once get an entrance.

RUMINANT, in natural hiſtory, is applied to an animal which chews over again what it has eat before; which is popularly called *chewing the cud*. Peyer, in a treatiſe *De Ruminantibus et Ruminatione*, ſhows that there are ſome animals which really ruminate; as oxen, ſheep, deer, goats, camels, hares, and ſquirrels: and that there are others which only appear to do ſo, as moles, crickets, bees, beetles, crabs, mullets, &c. The latter claſs, he obſerves, have their ſtomachs compoſed of muſcular fibres, by which the food is ground up and down as in thoſe which really ruminate. Mr Ray obſerves, that ruminants are all four-footed, hairy, and viviparous; ſome with hollow and perpetual horns, others with deciduous ones.

RUMP OF THE SACRIFICES. Moſes had ordained, that the rump and fat of the ſheep that were offered for a peace-offering ſhould be put upon the fire of the altar (Lev. iii. 9. vii. 3. viii. 25. ix. 19.). The rump was eſteemed the moſt delicate part of the animal.

RUMPHIA, in botany: A genus of the monogynia order, belonging to the triandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The calyx is trifid; the petals three; the fruit a trilocular plum.

RUNDLET, or RUNLET, a ſmall veſſel, containing an uncertain quantity of any liquor, from 3 to 20 gallons.

RUNGS, in a ſhip, the ſame with the floor or ground timbers; being the timbers which conſtitute her floor; and are bolted to the keel, whoſe ends are rung-heads.

Rung-Heads, in a ſhip, are made a little bending to direct the ſweep or mold of the futtocks and naveltimbers; for here the lines begin which make the compaſs and bearing of the ſhip.

RUNIC, a term applied to the language and letters of the ancient Goths, Danes, and other northern nations. See ALPHABET.

RUNNER, in the ſea-language, a rope belonging to the garnet and the two bolt-tackles. It is reeved in a ſingle block joined to the end of a pendant: it has at one end a hook to hitch into any thing; and, at the other, a double block, into which is reeved the fall of the tackle, or the garnet, by which means it purchaſes more than the tackle would without it.

RUNNING-THRUSH, among farriers. See FARRIERY, ſect. xliv.

RUNNET, or RENNET, is the concreted milk found in the ſtomachs of ſucking quadrupeds, which as yet have received no other nouriſhment than their mother's milk. In ruminating animals, which have ſeveral ſtomachs, it is generally found in the laſt, though ſometimes in the next to it. If the runnet is dried in the ſun, and then kept cloſe, it may be preſerved in perfection for years. Not only the runnet itſelf, but alſo the ſtomach in which it is found, curdles milk without any previous preparation. But the common method is, to take the inner membrane of a calf's ſtomach, to clean it well, to ſalt and hang it up in brown paper: when this is uſed the ſalt is waſhed off, then it is macerated in a little water during the night, and in the morning the infuſion is poured into the milk to curdle it. But ſee more particularly the article CHEESE for a proper receipt to make runnet, upon which the quality of the cheeſe greatly depends—The medicinal qualities of runnet are its acrimony, its reſolvent power, and its uſefulneſs in ſurfeits from food of difficult digeſtion.

RUPEE, a ſilver coin current in the Eaſt Indies, worth about 2 s. 6 d.

RUPERT, or ROBERT. See ROBERT

RUPERT, prince palatine of the Rhine, &c ſon of Frederic prince elector palatine of the Rhine and Eliſabeth daughter to king James I of England, was born in 1619. He gave proofs of his bravery at the age of 13; and in 1642 came over into England, and offered his ſervice to king Charles I. his uncle, who gave him a command in his army. At Edgehill he charged with incredible bravery, and made a great ſlaughter of the parliamentarians. In 1643 he ſeized the town of Cirenceſter; obliged the governor of Litchfield to ſurrender; and having joined his brother prince Maurice, reduced Briſtol in three days, and paſſed to the relief of Newark. In 1644 he marched to relieve York, where he gave the parliamentarians battle, and entirely defeated their right wing; but Cromwell charged the marquis of Newcaſtle with ſuch an irreſiſtible force, that prince Rupert was entirely defeated. After this the prince put himſelf into Briſtol, which ſurrendered to Fairfax after a gallant reſiſtance The king was ſo enraged at the loſs of this city, ſo contrary to his expectation, that he recalled all prince Rupert's commiſſions, and ſent him a paſs to go out of the kingom In 1648 he went to France, was highly complimented by that court, and kindly received by king Charles II. who ſojourned there for the time Afterward he was conſtituted admiral of the king's navy; infeſted the Dutch ſhips, many of which he took; and having engaged with De Ruyter, obliged him to fly. He died in 1682, and was interred in king Henry VII's chapel, Weſtminſter, with great magnificence. Mr Grainger obſerves, that he poſſeſſed in a high degree that kind of courage which is better in an attack than a defence; and is leſs adapted to the land-ſervice than that of the ſea, where precipitate valour is in its element. He ſeldom engaged but he gained the advantage, which he

he generally loſt by purſuing it too far. He was better qualified to ſtorm a citadel, or even to mount a breach, than patiently to ſuſtain a ſiege; and would have furniſhed an excellent hand to a general of a cooler head. This prince is celebrated for the invention of prints in mezzotinto, of which he is ſaid to have taken the hint from a ſoldier's ſcraping his ruſty fuſil. The firſt print of this kind ever publiſhed was done by his highneſs, and may be ſeen in the firſt edition of Evelyn's Sculptra. The ſecret is ſaid to have been ſoon after diſcovered by Sherwin an engraver, who made uſe of a loaded file for laying the ground. The prince, upon ſeeing one of his prints, ſuſpected that his ſervant had lent him his tool, which was a channeled roller; but upon receiving full ſatisfaction to the contrary, he made him a preſent of it. The roller was afterwards laid aſide; and an inſtrument with a crenelled edge, ſhaped like a ſhoemaker's cutting-knife, was uſed inſtead of it. He alſo invented a metal called by his name, in which guns were caſt; and contrived an excellent method of boring them, for which purpoſe a water-mill was erected at Hackney-marſh, to the great detriment of the undertaker, as the ſecret died with the illuſtrious inventor.

Rupert's Drops, a ſort of glaſs-drops with long and ſlender tails, which burſt to pieces on the breaking off thoſe tails in any part; ſaid to have been invented by prince Rupert, and therefore called by his name. Concerning the cauſe of this ſurpriſing phenomenon ſcarce any thing that bears the leaſt appearance of probability has been offered. Their exploſion is attended in the dark with a flaſh of light; and by being boiled in oil, the drops are deprived of their exploſive quality.

RUPIN, or Rapin, a town of Germany, in the marquiſate of Brandenburg, and capital of a duchy of the ſame name. It is divided into the Old and the New. The Old was nothing but an ancient caſtle, very well furniſhed, the late king of Pruſſia, before his father's death, reſiding there. New Rupin is ſeated on a lake, and become a conſiderable place of trade, with a manufactory of cloth. It is alſo noted for brewers. E. Long. 13. 23. N. Lat. 53. 0.

RUPPIA, in botany: A genus of the tetragynia order, belonging to the tetrandria claſs of plants; and in the natural method ranking under the 15th order, *Inundatæ*. There is neither calyx nor corolla; but four pedicellated ſeeds.

RUSCUS, knee-holly, or *Butcher's Broom*: A genus of the ſyngeneſia order, belonging to the dioecia claſs of plants; and in the natural method ranking under the 11th order, *Sarmentaceæ*. The male calyx is hexaphyllous; there is no corolla; the nectarium is central, ovate, and perforated at the top. The female calyx, corolla, and nectarium, are the ſame as in the male; there is one ſtyle, with a trilocular two-ſeeded berry.

The moſt remarkable ſpecies is the aculeatus, or common butcher's broom, common in the woods in many parts of England. It has roots compoſed of many thick fibres which twine about each other; from which ariſe ſeveral ſtiff green ſtalks about three feet high, ſending out from their ſides ſeveral ſhort branches, garniſhed with ſtiff, oval, heart-ſhaped leaves, placed alternately on every part of the ſtalk, ending with ſharp prickly points. The flowers are produced in the middle, on the upper ſide of the leaves; they are ſmall, and cut into ſix parts; of a purple colour, ſitting cloſe to the midrib. They appear in June; and the female flowers are ſucceeded by berries as large as cherries, of a ſweetiſh taſte, which ripen in winter; when they are of a beautiful red colour. As this plant grows wild in moſt parts of England, it is rarely admitted into gardens; but if ſome of the roots are planted under tall trees in large plantations, they will ſpread into large clumps; and as they retain their leaves in winter, at that ſeaſon they will have a good effect. The ſeeds of this plant generally lie a year in the ground before they vegetate; and the plants ſo raiſed are long before they arrive at a ſize big enough to make any figure, and therefore it is much better to tranſplant the roots.—The root of this plant is accounted aperient, and in this intention is ſometimes made an ingredient in apozems and diet-drinks, for opening ſlight obſtructions of the viſcera and promoting the fluid ſecretions. This plant is uſed by the butchers for beſoms to ſweep their blocks. Huckſters place the boughs round their bacon and cheeſe to defend them from the mice; for they cannot make their way through the prickly leaves.

RUSH, in botany. See Juncus.

Rush-Candles See *Ruſh-Candles*.

RUSHWORTH (John), the compiler of ſome uſeful collections reſpecting the affairs of ſtate, was born in Northumberland about the year 1607, and was deſcended of honourable anceſtors. After attending the univerſity of Oxford for ſome time, he removed to Lincoln's Inn; but the ſtudy of law not ſuiting his genius, he ſoon deſerted it, in order to ſeek a ſituation where he might more eaſily gratify his love for political information. He frequented the meetings of parliament, and wrote down the ſpeeches both of the king and members. During the ſpace of 11 years, from 1630 to 1640, when no parliament was held, he was an attentive obſerver of the great tranſactions of ſtate in the ſtar-chamber, the court of honour, and exchequer chamber, when all the judges of England aſſembled there on caſes of great emergency. Nor did he neglect to obſerve with a watchful eye thoſe events which happened at a diſtance from the capital. He viſited the camp at Berwick, was preſent at the battle of Newborn, at the treaty of Rippon, and at the great council of York.

In 1640 he was appointed aſſiſtant to Henry Elſynge clerk to the houſe of commons, and thus had the beſt opportunities of being acquainted with their debates and proceedings. The commons conſidered him as a perſon worthy of confidence. In particular, they truſted him with carrying their meſſages to the king while he remained at York. And when the parliament created Sir Thomas Fairfax their general, Ruſhworth was appointed his ſecretary, and diſcharged the office much to the advantage of his maſter. When Fairfax reſigned his commiſſion, his ſecretary returned to Lincoln's Inn, and was ſoon after (in 1651-2) choſen one of the committee that was appointed to deliberate concerning the propriety and means of altering or new-modelling the common law. He was elected one of the repreſentatives for Berwick upon Tweed to the parliament which Richard Cromwell aſſembled in 1656, and was re-elected by the ſame town to the parliament which reſtored Charles II. to the crown.

After the Reſtoration, he delivered to the king ſeve-

Rushworth, Russelia.

ral books of the privy-council, which he had preserved in his own possession during the commotions which then agitated the country. Sir Orlando Bridgeman keeper of the great seal chose him his secretary in 1677, an office which he enjoyed as long as Sir Orlando kept the seals. In 1678 he was a third time chosen member for Berwick, and a fourth time in the ensuing parliament in 1679. He was also a member of the parliament which was convened at Oxford. The different offices he had held afforded him favourable opportunities of acquiring a fortune, or at least an independence; yet, whether from negligence or prodigality, he was never possessed of wealth. Having run himself into debt, he was arrested and committed to the King's Bench prison, Southwark, where he lingered for the last six years of his life in the most deplorable condition. His memory and judgment were much impaired, partly by age and partly by the too frequent use of spirituous liquors. He died on the 12th of May 1690.

His "Historical Collections of private Passages in State, weighty Matters in Law, remarkable Proceedings in Parliament," were published in folio at different times. The first part, comprehending the years between 1618 and 1629, appeared in 1659. The copy had been entrusted by Oliver Cromwell to Whitelock, with instructions to peruse and examine it. Upon perusing it, he thought it necessary to make some alterations and additions The second part was published in 168-; the third in 1692; the fourth and last, which comes down to the year 1648, was published in 1701; and altogether made seven volumes These underwent a second edition in 1721; and the trial of the earl of Strafford was added, which made the eighth. This work has been much applauded by those who condemn the conduct of Charles I. and accused of partiality by those who favour the cause of that unhappy monarch. One person in particular, Dr John Nelson of Cambridge, in a Collection of the Affairs of State published by the command of Charles II. undertook to prove, "that Rushworth has concealed truth, endeavoured to vindicate the prevailing detractions of the late times, as well as their barbarous actions, and with a kind of rebound to libel the government at second-hand" This accusation seems to be carried too far. His principles indeed led him to show the king and his adherents in an unfavourable light, and to vindicate the proceedings of parliament; yet it cannot justly be affirmed that he has misrepresented or falsified any of the speeches or facts which he has admitted into his collection. Perhaps he may have omitted some papers merely because they were unfavourable to the party which he had espoused; and is therefore not to be considered as an impartial historian who relates the whole truth, but as an honest lawyer, who states all his facts fairly and candidly, but passes over such as are injurious to his client's cause.

RUSSELIA, in botany: A genus of the trigynia order, belonging to the pentandria class of plants. The calyx is five-leaved; the petals five above; the capsule is one-celled and many seeded.

Russia.

1 Situation and extent.

Plate CCCCXL.

RUSSIA, a very large and powerful kingdom, partly in Europe and partly in Asia, is bounded on the north by the Northern Ocean, or Frozen Sea; on the east it is washed by the Eastern Ocean, and is divided from America by Behring's (formerly Anian) Straits, which are about 73 versts (A) wide. From thence, towards the south, it extends along the chain of the Aleoutskie islands, which approach the north-west coast of America; and from Kamtschatka, towards the south-west, it extends, by a chain of other islands, called Kourilskie islands, as far as Japan; on the south it borders on the Black Sea, on the nations which dwell at the foot of the Caucasian mountains, on a part of Persia, the Caspian Sea, the hordes of Kirghiskaisacki, on Ziungoria, Chinese Mungalia and Daouria (B); and on the west, on the Danish and Swedish Lapland, the Baltic Sea, Courland, Livonia, Lithuania, Poland, and Turkey in Europe.

Russia occupies more than a seventh part of the known continent, and nearly the 26th part of the whole globe. Its greatest extent from west to east, viz. from the 39½ to 207¼ degree of longitude, is 168 degrees; and if the islands of the Eastern Ocean be included, it will then be 185; so that the continental length of Russia, viz. from Riga to Tchoukotskoy Noss, which is the easternmost promontory, will constitute about 8500 versts. The greatest extent of this empire from north to south, that is, from the 78th to 50¼ degree of latitude, is 27¾ degrees. Hence the breadth of Russia, that is, from the Cape Taymour, which is the north-eastern promontory, to Kiakhta, will constitute about 3200 versts.

The greater part of this empire lies in the temperate zone, and a part of it, viz. that which is beyond the 66½ degree of latitude, lies in the frigid zone; and the whole surface contains above 2,150,000 square versts. There therefore is not at present, and never has been in any period, an empire, the extent of which could be compared to that of Russia. The length and breadth of this immense empire, taken in a straight line, may be thus discovered. Its furthermost point or spot on the north is the Taymour Cape, which is the most north-eastern promontory in the government of Tobolsk, lying in the 78th degree of latitude; its farthest point on the south is the mouth of the river Soulak, falling into the Caspian Sea in the government of Caucasus, lying in the 43d degree of latitude; its westernmost point is the island of Oezel in the government of Riga, in the 39½ degree of longitude; and the furthermost point of it on the east is the Tchoukotskoy Noss, which is the most eastern cape in the government of Irkoutsk, lying in the 207¼ degree of longitude.

2 Original inhabitants.

In ancient times Russia was inhabited by various nations; such as Hunns, Scythians, Sarmatians, Massagetes, Sclavonians, Cimbri, &c. of whom an account is given under the various detached articles in this work. The origin of the Russians themselves, though not prior to the ninth century, is still covered with almost impenetrable obscurity; partly owing to the ignorance and barbarity of the people, and partly to the mistaken

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(A) Versta is the usual measure of roads in Russia, 1166 yards and two feet.

(B) Daouria is that extent of land which is traversed by the river Amour. It is so called on account of the Daouri, its ancient inhabitants, who were a race of the Toungoosi or Manjouri.

Russia.

mistaken policy which yet prevails in the nation, of suppressing all accounts of their origin, and inquiries into their ancient state and situation; of which we have a remarkable instance in the suppression of a work by professor Muller, intitled *De Originibus Gentis et Nominis Russorum*.

3 Origin of Russians.

According to several authors of credit, the Russians derived their origin from the Slavi or Slavonians, corruptly called the *Sclavonians*, who settled first along the banks of the Volga, and afterwards near the Danube, in the countries named *Bulgaria* and *Hungary*: but being driven from thence by the Romans (whom the Russians call *Wolochers*, or *Wolotaners*), they first removed to the river Borysthenes, or Dneiper, then over-ran Poland, and, as is reported, built the city of Kiow. Afterwards they extended their colonies farther north, to the rivers which run into the *Ilmen* lake, and laid the foundation of the city of Novogorod. The towns of Smolensk and Tsernikow appear also to have been built by them, though the dates of these events cannot be ascertained. The most ancient inhabitants, not only of Russia, but all over Siberia, quite to the borders of China, are called *Tshudi*: for professor Muller, on inquiring in those parts by whom the ancient buildings and sepulchral monuments he saw there, were erected, was everywhere answered, that they were the works of the Tshudi, who in ancient times had lived in that country.

In the ninth century, the Scandinavians, that is, the Danes, Norwegians, and Swedes, emigrated from the north, and, crossing the Baltic, went to seek habitations in Russia. They first subdued the Courlanders, Livonians, and Esthonians; and, extending their conquests still farther, they exacted tribute from the Novogorodians, settled kings over them, and traded as far as Kiow, and even to Greece. These new invaders were called *Waregers*; which, according to professor Muller, signifies "sea-faring people;" or, if derived from the old northern word *war*, it signifies "warlike men." To these Waregers the name of *Russes*, or *Russians*, is thought by the most eminent authors to owe its origin; but the etymology of the word itself is entirely uncertain.

4 Russia at first divided into a number of petty kingdoms.

In the dark ages of which we are speaking, it is pretty certain that Russia was divided among a great number of petty princes, who made war upon each other with the ferocity and cruelty of wild beasts; so that the whole country was reduced to the utmost misery; when Gostomisel, a chief of the Novogorodians, pitying the unhappy fate of his countrymen, and seeing no other method of remedying their calamities, advised them to offer the government of their country to the Waregers. The proposal was readily accepted, and three princes of great abilities and valour were sent to govern them; namely, Ruric, Sineus, and Truwor, generally supposed to have been brothers. The first took up his residence at Ladoga, in the principality of Great Novogorod; the second at Bielo Osero, or the White Lake; and the third kept his court at Isborsk, or, according to others, at a small town, then called *Twertzog*, in the principality of Pleskow. The three brothers reigned amicably, and made considerable additions to their dominions; all of which at length devolved to Ruric by the death of Sineus and Truwor; but what the conquests of the two brothers were, we have no records to inform us of.

Ruric, to his honour, became zealous for the strict administration of justice; and issued a command to all the boyars who possessed territories under him, to exercise it in an exact and uniform manner. To this end, it was necessary there should be general laws. And this naturally leads us to conjecture, that letters were not entirely unknown in his dominions.

5 Ruric the first sovereign.

The Russian empire continued to flourish till the end of the reign of Wolodomir, who ascended the throne in the year 976. Having settled the affairs of his empire in peace, he demanded in marriage the princess Anne, sister to the Greek emperor Basilius Porphyrogenitus. His suit was granted, on condition that he should embrace Christianity. With this the Russian monarch complied; and that vast empire was thenceforward considered as belonging to the patriarchate of Constantinople. Wolodomir received the name of *Basilius* on the day on which he was baptized; and, according to the Russian annals, 20,000 of his subjects were baptized the same day. Michael Syra, or Cyrus, a Greek, sent by Photius the patriarch of Constantinople, was accepted as metropolitan of the whole country. At the same time, Wolodomir put away all his former wives and concubines, of whom he had upwards of 800, and by whom he had 12 sons, who were baptized on the same day with himself. The idols of paganism were now thrown down; churches and monasteries were erected, towns built, and the arts began to flourish. The Sclavonian letters were now first introduced into Russia; and Wolodomir sent missionaries to convert the Bulgarians; but only three or four of their princes came to him and were baptized. These events happened in the year 987.

6 Christianity introduced.

7 Learning and the arts cultivated.

Wolodomir called the arts from Greece, cultivated them in the peaceable periods of his reign, and rewarded their professors with generosity, that he might dispel the clouds of ignorance which enveloped his country, call forth the genius of his countrymen, and render them happy. He also founded public schools, and enacted a law concerning the methods of instructing youth, and directing the conduct of the masters appointed to instruct them. He died in 1028, and, contrary to all rules of sound policy and prudence, divided his empire among his 12 sons. The consequence was, that they fell to making war and destroying one another as soon as their father was dead. Sviatopolk, one of the brothers, having destroyed and seized upon the dominions of two others, was himself driven out by Jaroslaus, and obliged to fly to Boleslaus king of Poland. This brought on a dreadful war between the Poles and Russians; in which the former were victorious, and the latter lost a great part of their dominions, as has been related under the article Poland.

8 A civil war.

Jaroslaus finding himself unable to oppose the king of Poland, now turned his arms against the rest of his brothers, all of whom he dispossessed of their dominions, and seized them for himself. He next attacked the Chacks, over whom he gained considerable advantages. After which he ventured once more to try his fortune against Boleslaus: but in this second expedition he was attended with worse success than before; being now reduced to the condition of a vassal and tributary to the victorious

Russia.

victorious monarch. However, in the reign of Mieczslaus II. the successor of Boleslaus, the Russians again shook off the yoke, and a lasting peace was confirmed by the marriage of Mieczslaus with the sister of Wolodomir.

9 Russia becomes tributary to Poland.

Jarislaus now continued to enjoy the empire quietly, and was so much addicted to reading, that he devoted even a part of the night to his studies. He invited men of letters to his court, and caused many Greek books to be translated into the Russian language. It was he that in the year 1019, gave the people of Novogorod several laws, under the title of *Gramota Soudzenaia*, to be observed in the courts of justice. These are the first laws that were reduced to writing in Russia; and, what renders them remarkable, is the conformity they have with those of the other northern nations. He founded a public school at Novogorod, where he maintained and educated 300 children at his own expence. His court was the most brilliant of the north, and furnished an asylum to unfortunate princes. He died in 1052; and fell into the same error which his father had committed, by dividing his dominions among his five sons. This produced a repetition of the bloody scenes which had been acted by the sons of Wolodomir; the Poles took the advantage of the distracted state of affairs to make continual inroads and invasions; and the empire continued in the most deplorable situation till the year 1237, when it was totally subdued by the Tartars. We are not informed of any particulars of this remarkable event, farther than that innumerable multitudes of these barbarians, headed by their khan Batto, or Battus, after ravaging great part of Poland and Silesia, broke suddenly into Russia, where they committed the greatest cruelties. Most of the Russian princes, among whom was the great duke George Sevoloditz, were made prisoners, and racked to death; and, in short, none found mercy but such as acknowledged themselves the subjects of the Tartars. The imperious conqueror imposed upon the Russians every thing that is most mortifying in slavery; insisting that they should have no other princes than such as he approved of; that they should pay him yearly a tribute, to be brought by the sovereigns themselves on foot, who were to present it humbly to the Tartarian ambassador on horseback. They were also to prostrate themselves before the haughty Tartar; to offer him milk to drink; and, if any drops of it fell down, to lick them up; a singular mark of servility, which continued near 260 years.

10 Subdued by the Tartars.

11 The empire harassed by internal dissensions.

George Sevoloditz was succeeded by his brother Michael Sevoloditz Zernigouski; who opposed the Tartars, but was defeated by them, and lost his life. He left three sons, Feodor, Alexander, and Andrew, whose wars with each other ended in the death of them all. A son of Alexander, and of the same name, was then placed on the throne by the Tartars; and his son Danilow, or Daniel Alexandrovitz, removed his court from Wolodimir to Moscow, where he first assumed the title of *Great duke of Wolodimir and Moscow*. Daniel Alexandrovitz left two sons, Gregory and John; the former of whom, named *Kalita*, from a purse he used always to carry about him filled with money for the poor, ascended the throne; but he was soon assassinated by another prince named *Demetri Michaelovitz*, who was himself put to death for it by the Tartars; and John, likewise surnamed *Kalita*, was then made czar. This John left three sons, John, Simon, and Andrew; and the eldest of these, commonly called *Ivan Ivanovitz*, was made czar, with the approbation of the Tartars, on whom he was dependent.

Russia.

During these several reigns, which fill a space of upwards of 100 years, and which all historians have passed over for want of records concerning them, the miseries of a foreign yoke were aggravated by all the calamities of intestine discord and war; whilst the knights of Livonia, or brothers of the short-sword, as they are sometimes called, a kind of military order of religious, on one side, and the Poles on the other, catching at the opportunity, attacked Russia, and took several of its towns, and even some considerable countries. The Tartars and Russians, whose interests were in this case the same, often united to oppose their common enemies; but were generally worsted. The Livonians took Pleskow; and the Poles made themselves masters of Black Russia, the Ukraine, Podolia, and the city of Kiow. Casimir the Great, one of their kings, carried his conquests still farther. He asserted his pretensions to a part of Russia, in right of his relation to Boleslaus duke of Halitz, who died without issue, and forcibly possessed himself of the duchies of Perzemyslia, Halitz, and Luckow, and of the districts of Sanock, Lubackzow, and Trebowla; all which countries he made a province of Poland.

12 And by external enemies.

The newly-conquered Russians were ill-disposed to brook the government of the Poles; whose laws and customs were more contrary to their own than those of the Tartars had been. They joined the latter to rid themselves of the yoke; and assembled an army numerous enough to overwhelm all Poland, but destitute of valour and discipline. Casimir, undaunted by this deluge of barbarians, presented himself at the head of a few troops on the borders of the Vistula, and obliged his enemies to retire.

Demetrius Ivanovitz, son of Ivan Ivanovitz, who commanded in Moscow, made frequent efforts to rid himself of the galling yoke. He defeated in several battles Maymay khan of the Tartars; and, when conqueror, refused to pay them any tribute, and assumed the title of *great duke of Muscovy*. But the oppressors of the north returned in greater numbers than before; and Demetrius, at length overpowered, after a struggle of three years, perished with his whole army, which, if we may credit historians, amounted to upwards of 240,000 men.

13 A great army cut in pieces by the Tartars.

Basilius Demetrivitz revenged his father's death. He attacked his enemies, drove them out of his dominions, and conquered Bulgaria. He made an alliance with the Poles, whom he could not subdue; and even ceded to them a part of his country, on condition that they should help him to defend the rest against any new incursions of the Tartars. But this treaty was a weak barrier against ambition. The Russians found new enemies in their allies; and the Tartars soon returned.—Basilius Demetrivitz had a son who was called after his name, and to whom the crown ought naturally to have descended. But the father, suspecting his legitimacy, left it to his own brother Gregory, a man of a severe and tyrannical disposition, and therefore hated by the people, who asserted the son's right, and proclaimed him their sovereign. The Tartars took cognizance of


RUSSIA
OR
MOSCOVY
NORWEY
SWEDEN
LAPLANDERS
WHITE SEA
Gulf of Bothnia
Gulf of Finland
BALTIC SEA
COURLAND
LITHUANIA
POLAND
Archangel
St. PETERSBURG
Novgorod
Riga
MOSQUA
Smolensk
Kiev
Nizney Novgorod
Kazan
Astrakhan
Oudinsk
Orenburg
Tobolsk
Sourgoot
Obdorsk
Tomsk
NOVAYA ZEMLIA
Strait of Vaygat
SAMOEDES
OSTIAKI
TARTARS
KIRGHIS KAISSAKS of the MIDDLE HORDE
KIRGHIS KAISSAKS of the LITTLE HORDE
KARAKALPAKI
CASPIAN SEA
SEA of ARAL
BOUKHARIA
BLACK SEA
Scale of Russian Verste
]

of the dispute, and determined it in favour of Basilius; upon which Gregory had recourse to arms, drove his nephew from Moscow to the principality of Uglitz, and forcibly usurped and kept possession of his throne. Upon the death of Gregory, Basilius returned to Moscow; but Andrew and Demetrius, sons of the late usurper, laid siege to that city, and obliged him to retire to the monastery of Troitz, where they took him prisoner, with his wife and son, and put out his eyes: hence the appellation of *jemnoi*, "blind," by which this Basilius is distinguished. The subjects of this unfortunate prince, incensed at the cruel treatment he had received, forced the perpetrators of it to fly to Novogorod, and reinstated their lawful sovereign at Moscow, where he died.

14 Basilius I. restores the rights of Russia.

In the midst of this general confusion, John Basilovitz I. by his invincible spirit and refined policy, became both the conqueror and deliverer of his country, and laid the first foundation of its future grandeur. Observing with indignation the narrow limits of his power at his accession to the throne, after the death of his father Basilius the Blind, he began immediately to revolve within himself the means of enlarging his dominions. Marriage, though he had in reality no regard or inclination for women, seemed to him one of the best expedients he could begin with; and accordingly he demanded and obtained Maria, sister of Michael duke of Twer; whom he soon after deposed, under pretence of revenging the injuries done to his father, and added this duchy to his own territories of Moscow. Maria, by whom he had a son named *John*, who died before him, did not live long; and upon her death he married Sophia, daughter of Thomas Paleologus, who had been driven from Constantinople, and forced to take shelter at Rome, where the pope portioned this princess, in hopes of procuring thereby great advantage to the Romish religion; but his expectations were frustrated, Sophia being obliged to conform to the Greek church after her arrival in Russia. What could induce Basilovitz to seek a consort at such a distance, is nowhere accounted for; unless it be, that he hoped by this means to establish a pretension to the empire of the east, to which her father was the next heir: but however that may be, the Russians certainly owed to this alliance their deliverance from the Tartar yoke. Shocked at the servile homage exacted by those proud victors, her husband going to meet their ambassadors at some distance from the city, and standing to hear what they had to say; whilst they were at dinner, Sophia told him, that she was surprised to find that she had married a servant to the Tartars. Nettled at this reproach, Basilovitz feigned himself ill when the next deputation from the Tartars arrived, and under that pretence avoided a repetition of the stipulated humiliating ceremonial. Another circumstance equally displeasing to this princess was, that the Tartars had, by agreement, within the walls of the palace at Moscow, houses in which their ministers resided; to show their power, and at the same time watch the actions of the great duke. To get rid of these, a formal embassy was sent to the Tartarian khan, to tell him, that Sophia having been favoured with a vision from above, ordering her to build a temple in the place where those houses stood, her mind could not be at ease till she had fulfilled the divine command; and therefore his leave was desired to pull them down, and give his people others. The khan consented: the houses within the Kremlin were demolished; and no new ones being provided, the Tartar residents were obliged to leave Moscow; their prince not being able to revenge this breach of promise, by reason of a war he was then engaged in with the Poles. Basilovitz taking advantage of this circumstance, and having in the mean time considerably increased his forces, openly disclaimed all subjection to the Tartars, attacked their dominions, and made himself master of Casan, where he was solemnly crowned with the diadem of that kingdom, which is said to be the same that is now used for the coronation of the Russian sovereigns. The province of Perm, with great part of Lapland and Asiatic Bulgaria, soon submitted to him; and Great Novogorod, a city then so famous that the Russians used to express its vast importance by the proverbial expression of, *Who can resist God and the Great Novogorod?* was reduced by his generals after a seven years siege, and yielded him an immense treasure; no less, say some writers, than 300 cart loads of gold and silver, and other valuable effects. Alexander Witold, waiwode of Lithuania, was in possession of this rich place, from which he had exacted for some years an annual tribute of 100,000 rubles, a prodigious sum for those days and for that country. When it was taken by John Basilovitz, he, the better to secure his conquest, put it under the protection of the Poles, voluntarily rendered himself their tributary for it, and accepted a governor from the hands of their king Casimir, a weak and indolent prince, from whom he well knew he had nothing to fear. The Novogorodians continued to enjoy all their privileges till about two years after; when John, ambitious of reigning without controul, entered their city with a numerous retinue, under pretence of keeping to the Greek faith, he being accused of an intention to embrace the Romish religion; and with the assistance of the archbishop Theophilus, stripped them all of their remaining riches. He then deposed the treacherous prelate, and established over Novogorod new magistrates, creatures [illegible]: destroying at once, by this means, a noble city, which, had its liberties been protected, and its trade encouraged, might have proved to him an inexhaustible fund of wealth. All the north beheld with terror and astonishment the rapid increase of the victor's power: foreign nations courted his alliance; and the several petty princes of Russia submitted to him without resistance, acknowledging themselves his vassals.

15 Marries a Greek princess.

16 Who expels him shake off the Tartar yoke.

Russia.

17 His success.

The Poles, however, complained loudly of his late breach of faith in regard to Novogorod, and threatened revenge: upon which Basilovitz, elated with his successes, with the riches he had amassed, and [illegible] the weak condition of most of his neighbours, [illegible] of troops into Lithuania, and soon became [illegible] several of its towns. Casimir applied for [illegible] to Matthias king of Hungary: but was [illegible] last, that his own soldiers were [illegible] that his auxiliaries had lately [illegible] and that it was impossible for him to [illegible] out of the neighbouring countries. The Polish monarch in this distress was obliged to purchase of John a cessation of arms for two years, during which the Muscovite made new accessions to his dominions.

18

The dukes of Servia, whose territories were [illegible]

Russia.

500 miles in extent, had long thought themselves ill used by the Lithuanians on account of their religion, which was that of the Greek church; and wanted to withdraw from their subjection to Poland, and put themselves under the protection of Russia. The following accident afforded them the wished-for pretence. Their envoys arriving at Wilna, desired admittance to the king's presence: which being refused, one of them endeavoured to force his way in; but the porter shut the door rudely against him, and in so doing broke one of his fingers. The servant was immediately put to death for this offence: but the Servians, by no means satisfied with that, returned home in great fury, and prevailed upon their countrymen to submit themselves and their country to the Muscovites. Casimir made several attempts to recall them, but to no purpose.

19 Servia submits to him.

Matthias king of Hungary dying about this time, two of his sons, Uladislaus, then king of Bohemia, and John Albert, contended for the vacant crown. Casimir wanted to give it to the latter, whom he accordingly assisted to the utmost of his power; and to enable him the better so to do, though he was in great want of money as well as men, he purchased a renewal of the truce with the Russians, and thereby gave John Basilovitz time to establish himself in his new acquisitions.

Casimir died in the year 1492, and was succeeded on the throne of Poland by his son John Albert, who, totally disregarding the Russians, involved himself unnecessarily in a war with the brave Stephen duke of Moldavia: and though he had at the same time both the Tartars and Turks against him, his propensity to pleasure, and his lascivious disposition, rendered him so indolent, that he not only did not so much as attempt to molest Basilowitz in any of his possessions, but concluded a peace with him on terms very advantageous to the latter; and even entered into a treaty, by which he stipulated not to assist the Lithuanians, though they had chosen his brother Alexander for their duke, in case the Russians should attack them, as it was supposed they would. Alexander thinking to parry the inconveniences of this agreement, and to guard against the designs of his enemies, demanded in marriage Basilowitz's daughter, Helena, by his second wife Sophia, and obtained her. The Lithuanians then flattered themselves with a prospect of tranquillity: but the ambitious *czar*, for Basilovitz had assumed that title since his conquest of Casan, aiming only at the increase of dominion, soon found a pretence to break with his new allies, by alleging, that Polish Russia, as far as the river Berezina, had formerly belonged to his ancestors, and therefore should be his; and that Alexander, by his marriage-contract, had engaged to build a Greek church at Wilna for his Russian consort, which he had not done, but on the contrary endeavoured to force the Polish Russians to embrace the religion of the church of Rome. In consequence of this plea, he sent into the territories of his son-in-law, by different ways, three armies, which reduced several places, destroyed the country about Smolensko, and defeated the Lithuanian field marshal Ostrofsky near the river Wedrasch, where he fell unawares into an ambush of the Russians. Alexander raised a new army of Silesians, Bohemians, and Moravians; but they came too late, the Russians having retired with their plunder. Elated by their

20 Concludes an advantageous treaty with the Poles.

21 His success in Lithuania.

success against the Lithuanians, they invaded Livonia in the year 1502, with 130,000 men: but Walter Von Plettenberg, grand-master of the knights of the cross, with only 12,000 men, gave them a total overthrow; killing 10,000 of his enemies, with scarce any loss on his own side. Basilovitz dispirited by this defeat, and being then engaged in a war with the Tartars, the Poles, and the city of Pleskow, immediately dispatched an embassy to Plettenberg, and concluded a truce with him for 50 years. At the same time he begged of that general to send to Moscow, that he might see him, one of the *iron-dragoons*, as he called them, who had performed wonders in the late engagement. Von Plettenberg readily complied; and the czar, struck with admiration, rewarded the cuirassier's accomplishments with considerable honours and presents.

22 Is defeated in Livonia and obliged to retire.

Alexander had been elected king of Poland upon the death of his brother John Albert, which happened in the beginning of this year: but the Poles refused to crown his consort Helena, because she adhered to the Greek religion. Provoked at this affront, and probably still more stimulated by ambition, Basilovitz resolved again to try his fortune with them; and accordingly ordered his son Demetrius, now the eldest, to march against Smolensko, and reduce that city. The young prince did all that could be done: but the vigorous resistance of the besieged, and the arrival of the king of Poland with a numerous army, obliged the Russians to raise the siege and return home; and the czar was glad to make a fresh truce with the Poles for six years, upon the easy terms of only returning the prisoners he had taken. Some writers say, that flying into a violent passion with his son the moment he saw him, and imputing the miscarriage of this expedition to his want of courage or conduct, he gave him a blow which laid him dead at his feet; to which is added, that remorse for this rash action carried his father to his grave: but this account is not confirmed by authors whose authority can be relied on. Certain it is, however, that neither of them long survived this event; and that Demetrius died first: for Sophia, who had gained an absolute ascendant over her husband, and wanted to give the sovereignty to her own children, persuaded him by various artful insinuations to set aside and imprison his grandson Demetrius, the only child of the late John, whom he had by his first wife Maria, and declare her then eldest son, Gabriel, his successor. Age and infirmities had rendered the czar so weak, that he blindly followed the iniquitous advice; but shortly after finding his end approach, he sent for young Demetrius, expressed great repentance for his barbarity towards him, and on his death-bed declared him his lawful successor. He died in November 1505, after a reign of 55 years; leaving behind him an immense territory, chiefly of his own acquiring.

23 He dies and is succeeded by his son who takes the name of Basilius.

The czar was no sooner dead, than his son Gabriel Ivanovitz, at the instigation of his mother Sophia, put an end to the life of the young Demetrius, by confining him in prison, where he perished with hunger and cold; after which Gabriel was crowned by the name of *Basilius*, and took the title of *czar*, as well as all the other titles belonging to the sovereignty. On his accession to the throne he expected that the Poles would be in confusion about the election of a new sovereign; but his expectations being defeated by their unanimous

election

election of Sigismund I. a prince of a mild and peaceable disposition, he sent an army into Lithuania, and laid siege to Smolensko. The place made a brave resistance, till news arrived that the crown troops of Poland were coming to their assistance, with the additional aid of 80,000 Crim Tartars; on which the Russians returned home with the utmost precipitation. They were, however, quickly followed by the Poles, who reduced the czar to submit to such terms as they pleased to impose. Basilius remained quiet till he thought himself capable of revenging the injuries he had sustained; after which, pretending to set out upon some other expedition, he marched with a numerous army, and encamped in the neighbourhood of Pleskow, where the Poles, presuming on the late treaty, received him as a friend and ally. But in the mean time the Muscovite priests of the Greek church preached to their hearers concerning the expediency of having a sovereign of their own religion; and brought them to such a height of enthusiasm, that they murdered their magistrates, and opened their gates to the czar, who made them all slaves, and sent them away to different parts, replacing them with Muscovites, the better to secure his conquest. Soon after he took also the city of Smolensko; and the Swedes, alarmed at his rapid progress, desired a prolongation of the truce, at that time subsisting between the two states, for 60 years longer. The duchy of Lithuania was the great object of the designs of Basilius; and to accomplish his design, he ordered Ivan Czeladin, a man of great resolution, and enterprising even to rashness, to march thither with 80,000 men. The army of the Poles did not exceed 35,000 men, but was commanded by a most experienced general. The two armies met on the opposite banks of the Dneiper, near Orsova, and the Poles passed that river in sight of their enemies. Czeladin's officers advised him to fall upon the enemy when about half of them had crossed the river; but that general, too confident of success, replied, that the other half would then run away, and he was determined to gain a complete victory. The Lithuanians began the attack, but were repulsed by the Russians; who imprudently following them, lost an advantageous situation, and found themselves at once exposed to the full fire of the enemy's artillery. The Polish cavalry then rushed in among them sword in hand, and made dreadful havoc; the trembling Russians scarce even attempting to defend themselves. Those who endeavoured to fly, fell into the Dneiper and were drowned; and all the rest, including Czeladin himself, were made slaves.

25 Is utterly defeated by the Poles.

26 Distress of Basilius.

Basilius was at Smolensko when he received the news of this dreadful defeat; on which he immediately fled to Moscow, where his danger increased daily. The Crim-Tartars ravaged his dominions, and the emperor Maximilian, with whom he had been in alliance, deserted him; his troops were utterly defeated in Livonia, where he was obliged to submit to a peace on dishonourable terms; but what these terms were historians do not inform us. In the mean time, the king of Poland stirred up the Tartars to invade Russia, while the Russian monarch in his turn endeavoured to excite them to an invasion of Poland. These barbarians, equally treacherous to both parties, first invaded and ravaged Podolia, a province of Poland; and then having invaded Russia and defeated the armies of the czar in the year 1521, they poured in thither in such incredible multitudes, that they quickly made themselves masters of Moscow. An army, which had been sent to oppose their progress, was defeated near the river Occa; and the czar's brother Andrew, who commanded it, was the very first who fled. Basilius, with great difficulty made his way to Novogorod; so terrified, that he hid himself by the way under a hay-cock, to avoid a straggling party of the enemy. The Tartars, however, soon obliged him to sign a writing, by which he acknowledged himself their vassal, and promised to pay them a tribute of so much a head for every one of his subjects. Besides this, Machmetgerei, the commander of the Tartars, caused his own statue to be set up at Moscow, as a mark of his sovereignty; compelled Basilius to return to his capital, to bring thither in person the first payment of this tribute, and, as a token of his submission, to prostrate himself before his statue. Machmetgerei then left Moscow, and returned home with an immense booty, and upwards of 80,000 prisoners, who were made slaves, and sold like cattle to the Turks and other enemies of the Christian name. In his way back he attempted to take the city of Rezan; but was repulsed with considerable loss by Iwan Kowen, who commanded in that place for the Russians. Here the Tartar general narrowly escaped with his life, his coat being shot through with a musket-ball; and the Muscovites pulled down his statue, and broke it to pieces as soon as the conquerors had left them.

Russia.

27 Moscow taken by the Tartars.

The Tartars were no sooner gone, than Basilius began to talk in a high strain of the revenge he intended to take of them; but was never able to execute his threats. He died in 1533; and was succeeded by his son Ivan or John Basilovitz, an infant of five years of age.

28 Basilius dies and is succeeded by his son John Basilovitz II.

During the minority of the young prince, his two uncles Andrew and George endeavoured to deprive him of the crown; but their attempts were defeated by the care and activity of his guardians; and the Poles also immediately commenced hostilities, but could make little progress. The new czar, as soon as he entered the 19th year of his age, showed an inclination for rescuing his subjects out of that desperate state of ignorance and barbarism in which they had been hitherto immersed. He sent a splendid embassy to the emperor Charles V. who was then at Augsburg, to desire the renewal of the treaty of friendship which had been concluded with his father Maximilian; and offering to enter into a league with him against the Turks, as enemies to the Christian religion; for his further information in which, particularly in regard to the doctrine and ceremonies of the Latin church, he requested that his ambassador might be allowed to send from Germany to Russia proper priests to instruct him and his subjects. With these he likewise desired to have some wise and experienced statesmen, able to civilize the wild people under his government; and also, the better to help to polish them, he requested that he would send mechanics and artists of every kind; in return for all which he offered to furnish two tons of gold yearly, for 20 years together, to be employed in the war against the Turks. The emperor readily agreed to the desire of the czar; and the Russian ambassador accordingly engaged

29 His embassy to Charles V.

Ruſſia.

30 The German artiſts prevented by the Lubeckers from going to Ruſſia.

gaged upwards of 300 German artiſts, who were directed to repair to Lubec, in order to proceed from thence to Livonia. But the Lubeckers, who were very powerful at that time, and aimed at nothing leſs than the engroſſing of the whole commerce of the north, ſtopped them, and repreſented ſtrongly to the emperor, in the name of all the merchants in Livonia, the dangerous conſequence of thus affording inſtructions to the Ruſſians, who would ſoon avail themſelves of it to ruin their trade, and diſtreſs the ſubjects of his imperial majeſty. The workmen and others intended for Ruſſia were eaſily prevailed upon to return to their reſpective homes; and the czar's ambaſſador was arreſted upon his arrival at Lubec, and impriſoned there at the ſuit of the Livonians: however, he made his eſcape ſhortly after; and the czar, though provoked to the laſt degree at the behaviour of the Lubeckers, was obliged for ſome time to ſuſpend his reſentment.

31 Caſan conquered by Baſilius, all except the capital.

The firſt enterpriſe of Baſilovitz now was againſt the Tartars of Caſan, who had hitherto been ſuch formidable enemies. In this he was attended with great ſucceſs; the whole territory was conquered in ſeven years; but the capital, named alſo *Caſan*, being well fortified and bravely defended, made ſuch reſiſtance as quite diſheartened the beſiegers, and made them think of abandoning their enterpriſe. Baſilovitz being informed of this, haſtened to them with a conſiderable reinforcement, endeavoured to revive their drooping courage, and exhorted them to puſh the ſiege with redoubled vigour. However, the greater part, deaf to all his remonſtrances, after loudly inſiſting upon a peace with the Tartars, and leave to return home, proceeded to mutiny, and fell upon their comrades who were for continuing the war. Baſilovitz, alarmed at this event, ruſhed in among the combatants, and with great difficulty parted them: but neither menaces nor intreaties, nor even a promiſe of giving them the whole plunder of the city if they took it, could prevail on them to continue the war. Their rage at laſt prompted them to threaten the life of their ſovereign; who, to provide for his own ſafety, was obliged to make the beſt of his way to Moſcow; and the mutineers, no longer regarding any command, inſtantly returned thither.

32 His method of puniſhing a treachery

Baſilovitz, though juſtly incenſed at this inſolence, took a method of puniſhing it which does honour to his humanity. Having ſelected a guard of 2000 of his beſt troops, he ordered a great feaſt, to which he invited his principal nobles and officers, to each of whom, according to the Ruſſian cuſtom, he gave very rich garments. The chief of the ſeditious were clothed in black velvet; and after the dinner was over, he made a ſpeech to the whole company, ſetting forth the behaviour of his troops before Caſan, their contempt of his commands, and their conſpiracy to take away his life: to which he added, that he was doubly ſorry to find the inſtigators of ſuch wickedneſs among thoſe who were ſtyled, and who ought to be, his faithful counſellors; and that thoſe who knew themſelves to be guilty of ſuch atrocious wickedneſs could not do better than voluntarily to ſubmit themſelves to his mercy. Upon this, moſt of them immediately threw themſelves at his feet, and implored his pardon. Some of the moſt criminal were executed, but the reſt were only impriſoned.

Ruſſia.

33 The capital of Caſan again beſieged and taken.

Immediately after this puniſhment of the rebels, Baſilovitz marched with a freſh army to re-inveſt Caſan before the Tartars had time to recover themſelves. The beſieged ſtill made an obſtinate defence, and the Ruſſians again began to be diſpirited; upon which the czar ordered his pioneers to undermine the walls of the citadel, a practice then quite unknown to the Tartars. This work being completed, he directed his prieſts to read a ſolemn maſs to the whole army, at the head of which he afterwards ſpent ſome time in private prayer, and then ordered fire to be ſet to the powder, which acted ſo effectually, that great part of the foundation was immediately blown up, and the Muſcovites ruſhing into the city, ſlaughtered all before them; while the aſtoniſhed Tartars, crowding out at the oppoſite gate, croſſed the river Caſanka, and fled into the foreſts. Among the priſoners taken on this occaſion were Simeon king of Caſan with his queen; both of whom were ſent to Moſcow, where they were treated with the utmoſt civility and reſpect.

34 Aſtracan reduced.

Encouraged by this ſucceſs, Baſilovitz invaded the country of Aſtracan, the capital of which he ſoon reduced; after which he prepared to revenge himſelf on the Livonians for their behaviour in ſtopping the German artiſts. John Baſilovitz I. had concluded a truce with this people for 50 years; which being now expired, Iodocus, archbiſhop of Dorpt and canon of Munſter in Weſtphalia, ſenſible of the danger to which he was expoſed by the vicinity of the Ruſſians, requeſted the czar to give him a prolongation of the truce. Baſilovitz deſired him to chooſe whether he would have a truce for five years longer, on condition that all the inhabitants of his archbiſhopric ſhould pay to him the annual tribute of a fifth part of a ducat for each perſon, which the people of Dorpt had formerly agreed to pay to the grand-dukes of Pleſkow; or, for 20 years, on this farther condition that he and the Livonians ſhould rebuild all the Ruſſian churches which had been demoliſhed in their territories at the time of the reformation, and allow his ſubjects the free exerciſe of their religion. Iodocus evaded an anſwer as long as he could: but finding at laſt that the affair grew ſerious, he levied a conſiderable ſum from his ſubjects, and fled with it to Munſter, where he reſigned his prebend and married a wife. His ſucceſſor, whoſe name was *Herman*, and the deputies from Livonia, accepted of the conditions, and ſwore to obſerve them; with this additional clauſe, that the prieſts of the Romiſh communion ſhould be exempted from paying tribute.

35 Negociation with the Livonians.

36 Their treachery.

But though the Livonians ſwore to the obſervation of theſe terms, they were at that very time in treaty with Guſtavus Vaſa, king of Sweden, to join them in attacking Ruſſia. The king of Sweden very readily complied with their deſires; upon which Baſilowitz invaded Finland. Guſtavus advanced againſt him with a powerful army; but as neither the Poles nor Livonians gave him any aſſiſtance, he was obliged to conclude a treaty with the czar, and ſoon after to evacuate the country. Finland was at this time governed by William of Furſtenberg grand-maſter of the Livonian knights, and the archbiſhop of Riga, with ſome other prelates; between whom a quarrel happened about this time, which ſoon facilitated the deſigns of Baſilovitz on the country. The archbiſhop, after attempting

37 State of Finland.

Ruſſia.

tempting to ſet himſelf above the grand-maſter even in civil affairs, and to perſecute thoſe who adhered to the confeſſion of Augſburg, choſe for his coadjutor in the archbiſhopric of Riga Chriſtopher duke of Mecklenburg. From the abilities and haughty temper of this lord, the Livonian knights apprehended that they had reaſon to fear the ſame fate which had befallen the Teutonic order in Pruſſia; and the ſtep itſelf was, beſides, unprecedented, and contrary to the eſtabliſhed laws of the country. Theſe diſcontents were heightened by letters ſaid to be intercepted from the archbiſhop to his brother Albert duke of Pruſſia, inviting this laſt totally to ſuppreſs the order of Livonian knights, and to ſecularize their poſſeſſions, eſpecially in Finland; ſo that an open war broke out among the contending parties, and the archbiſhop was ſeized and made priſoner. He was, however, ſoon releaſed through the mediation of the emperor of Germany and other potentates, backed by the powerful preparations of the Pruſſians to avenge his cauſe; but in the mean time, the ſtrength of their country being totally exhauſted, the Livonians were obliged, inſtead of preparing for war, to ſue to the Czar for peace. Baſilovitz replied, that he did not believe their intentions to be ſincere while they kept 6000 Germans in pay; and therefore, if they meant to treat of peace, they muſt begin with diſmiſſing theſe troops. The Livonians, having no longer any power to reſiſt, did as they were ordered; but it availed them nothing. In 1558 an army of 100,000 Ruſſians entered the diſtrict of Dorpt, and laid every thing waſte before them with the moſt ſhocking cruelty. After this they entered the territories of Riga, where they behaved with equal inhumanity; and having at laſt ſatiated themſelves with blood and treaſure, they retired with an immenſe booty and a great number of priſoners.

38 Livonia raged by the Ruſſians.

The Livonians, now thoroughly convinced of their own folly in expoſing themſelves to the reſentment of the exaſperated Ruſſians, ſent ambaſſadors to ſue for peace in good earneſt. Theſe offered the Czar a preſent of 30,000 ducats, and prevailed upon him to grant their nation a truce for four months, during which they returned home to get the money. But in this interval the Livonian governor of the city of Nerva, out of an idle frolic, fired ſome cannon againſt Ivanogorod or Ruſſian Nerva, ſituated on the oppoſite ſide of the river, and killed ſeveral of the Czar's ſubjects who were aſſembled in an open place quite unarmed. The Ruſſians, out of regard to the truce, did not even attempt to make repriſals; but immediately acquainted Baſilovitz with what had happened: which ſo incenſed the Czar, that when the Livonian ambaſſadors arrived, he told them, he looked upon their nation to be a ſet of perjured wretches, who had renounced all honeſty; that they might go back with their money and propoſals, and let their countrymen know that his vengeance would ſoon overtake them.

39 The Livonians ſue for peace, but the treaty is broken off.

40 Livonia raged a ſecond time.

The ambaſſadors were ſcarce arrived in Livonia, when an army of 300,000 Ruſſians entered the diſtrict of Nerva, under the command of Peter Siſegaledrii, who had been a famous pirate in the Euxine ſea. He took the city of Nerva in nine days, and very ſpeedily made himſelf maſter of Dorpt, where he found immenſe treaſures. Several other garriſons, terrified by the approach of ſuch numbers, quitted their poſts; ſo that the Ruſſians became maſters of a great part of Livonia almoſt without oppoſition. At laſt, Gothard Kettler, grand-maſter of the knights of Livonia, intreated Chriſtian III. king of Denmark to take Riga, Revel, and the countries of Garnland, Wirrland, and Eſthonia, under his protection; but the advanced age of that monarch, the diſtance of the places, and the want of ſufficient power to withſtand ſo potent an adverſary, made him decline the offer. However, he aſſiſted them with ſome money and powder, of which they ſtood greatly in need. Having then applied, without ſucceſs, firſt to the emperor of Germany, and then to the court of Sweden, Kettler put himſelf under the protection of the Poles, who had hitherto been ſuch formidable enemies to the Ruſſians. In the mean time the latter purſued their conqueſts; they took the city of Marienburg, laid waſte the diſtrict of Riga, deſtroyed Garnland, and penetrated to the very gates of Revel. Felin, in which was the beſt artillery of the whole country, became theirs by the treachery of its garriſon; and here William of Furſtenberg the old grand-maſter was taken, and ended his days in a priſon at Moſcow. The diſtracted ſituation of the Livonian affairs now induced the biſhop of Oeſel to ſell his biſhopric to Ferdinand king of Denmark, who exchanged it with his brother Magnus for a part of Holſtein. The diſtricts of Reval and Eſthonia put themſelves under the protection of Sweden; and then the grand-maſter, finding himſelf deſerted on all ſides, ſuppreſſed the order of which he was the chief, and accepted of the duchy of Courland, which he held as a fief of the crown of Poland.

41 The order of Livonian knights ſuppreſſed.

The Czar ſaw with pleaſure the diviſion of Livonia between the Swedes and Poles, which, he rightly judged, would produce quarrels between the two nations, and thus give him the fairer opportunity of ſeizing the whole to himſelf. Accordingly, in 1564, the Swedes offered him their aſſiſtance againſt the Poles; but he, judging himſelf to be ſufficiently ſtrong without them, attacked the Poles with his own forces, and was twice defeated, which checked his farther operations in Livonia. In 1569 he entered into a treaty of commerce with England, captain Richard Chancellor having a ſhort time before diſcovered a paſſage to Archangel in Ruſſia through the White Sea, by which that empire was likely to be ſupplied with foreign goods, without the aſſiſtance either of Poland or Livonia. To the diſcoverers of this new paſſage Baſilovitz granted many excluſive privileges; and after the death of queen Mary renewed the alliance with queen Elizabeth, and which has been continued without interruption ever ſince.

42 A treaty between Ruſſia and England.

In the mean time, however, a prodigious army of Turks and Tartars entered Muſcovy, with a deſign to ſubdue the whole country. But Zerebrinov, the Czar's general, having attacked them in a defile, put them to flight with conſiderable ſlaughter. Then they retired towards the mouth of the Volga, where they expected a conſiderable reinforcement; but being cloſely purſued by the Ruſſians and Tartars in alliance with them, they were again defeated and forced to fly towards Azov on the Black Sea. But when they came there, they found the city almoſt entirely ruined by the blowing up of a powder magazine. The Ruſſians then attacked their ſhips there, took ſome, and ſunk the reſt; by which means almoſt the whole army periſhed with hunger or the ſword of the enemy.

43 An army of Turks and Tartars cut off.

From this time the empire of Ruſſia became ſo formidable

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midable, that none of the neighbouring nations could hope to make a total conqueſt of it. The Poles and Swedes indeed continued to be very formidable enemies; and, by the inſtigation of the former, the Crim Tartars, in 1571, again invaded the country with an army of 70,000 men. The Ruſſians, who might have prevented their paſſing the Volga, retired before them till they came within 18 miles of the city of Moſcow, where they were totally defeated. The Czar no ſooner heard this news than he retired with his moſt valuable effects to a well-fortified cloyſter; upon which the Tartars entered the city, plundered it, and ſet fire to ſeveral churches. A violent ſtorm which happened at the ſame time ſoon ſpread the flames all over the city; which was entirely reduced to aſhes in ſix hours, though its circumference was upwards of 40 miles. The fire likewiſe communicated itſelf to a powder-magazine at ſome diſtance from the city; by which accident upwards of 50 rods of the city wall, with all the buildings upon it, were deſtroyed; and, according to the beſt hiſtorians, upwards of 120,000 citizens were burnt or buried in the ruins, beſides women, children, and foreigners. The caſtle, however, which was ſtrongly fortified, could not be taken; and the Tartars hearing that a formidable army was coming againſt them under the command of Magnus duke of Holſtein, whom Baſilovitz had made king of Livonia, thought proper to retire. The war, nevertheleſs, continued with the Poles and Swedes; and the Czar being defeated by the latter after ſome trifling ſucceſs, was reduced to the neceſſity of ſuing for peace. But the negotiations being ſomehow or other broken off, the war was renewed with the greateſt vigour. The Livonians, Poles, and Swedes, having united in a league together againſt the Ruſſians, gained great advantages over them; and, in 1579, Stephen Battori, who was then raiſed to the throne of Poland, levied an army expreſsly with a deſign of invading Ruſſia, and of regaining all that Poland had formerly claimed, which indeed was little leſs than the whole empire. As the Poles underſtood the art of war much better than the Ruſſians, Baſilovitz found his undiſciplined multitudes unable to cope with the regular forces of his enemies: and their conqueſts were ſo rapid, that he was ſoon obliged to ſue for peace: which, however, was not granted; and it is poſſible that the number of enemies which now attacked Ruſſia might have overcome the empire entirely, had not the allies grown jealous of each other; the conſequence of which was, that in 1582 a peace was concluded with the Poles, in which the Swedes were not comprehended. However, the Swedes finding themſelves unable to effect any thing of moment after the deſertion of their allies, were fain to conclude a truce; ſhortly after which the Czar, having been worſted in an engagement with the Tartars, died in the year 1584.

44 Moſcow taken and burnt by the Tartar.

45 War with Sweden and Poland.

46 Death of Baſilovitz.

This great prince was ſucceeded by his ſon Theodore Ivanovitz; a man of ſuch weak underſtanding, that he was totally unfit for government. Under him, therefore, the Ruſſian affairs fell into confuſion; and Boris Gudenov, a nobleman whoſe ſiſter Theodore had married, found means to aſſume all the authority. At laſt, unable to bear even the name of a ſuperior, he reſolved to uſurp the throne. For this purpoſe he cauſed the Czar's brother Demetrius, at that time only nine years of age, to be aſſaſſinated; and afterwards, knowing that no truſt could be put in an aſſaſſin, he cauſed him alſo to be murdered leſt he ſhould divulge the ſecret. In 1597 the Czar himſelf was taken ill and died, not without great ſuſpicion of his being poiſoned by Gudenov; of which indeed the Czarina was ſo well convinced, that ſhe would never afterwards ſpeak to her brother.

With Theodore ended the line of Ruric, who had governed the empire of Ruſſia for upwards of 700 years. Boris, who in reality was poſſeſſed of all the power, and would indeed have ſuffered nobody elſe to reign, artfully pretended to be unwilling to accept the crown, till compelled to it by the intreaties of the people; and even then he put the acceptance of it on the iſſue of an expedition which he was about to undertake againſt the Tartars. The truth of the matter, however, was, that no Tartar army was in the field, nor had Boris any intention of invading that country; but by this pretence he aſſembled an army of 500,000 men, which he thought the moſt effectual method of ſecuring himſelf in his new dignity. In 1600 he concluded a peace with the Poles, but reſolved to continue the war againſt the Swedes; however, being diſappointed in ſome of his attempts againſt that nation, he entered into an alliance with the Swediſh monarch, and even propoſed a match between the king's brother and his daughter. But while theſe things were in agitation, the city of Moſcow was deſolated by one of the moſt dreadful famines recorded in hiſtory. Thouſands of people lay dead in the ſtreets and highways, with their mouths full of hay, ſtraw, or even the moſt filthy things which they had been attempting to eat. In many houſes the fatteſt perſon was killed in order to ſerve for food to the reſt. Parents were ſaid to have eaten their children, and children their parents, or to have ſold them to buy bread. One author (Petrius) ſays, that he himſelf ſaw a woman bite ſeveral pieces out of a child's arm as ſhe was carrying it along; and captain Margaret relates, that four women having ordered a peaſant to come to one of their houſes, under pretence of paying him for ſome wood, killed and eat up both him and his horſe. This dreadful calamity laſted three years, notwithſtanding all the means which Boris could uſe to alleviate it; and in this time upwards of 500,000 people periſhed in the city.

47 Extinction of the line of Ruric.

48 Dreadful famine at Moſcow.

In 1604 a young man appeared, who pretended to be Demetrius, whom Boris had cauſed to be murdered, as we have already ſeen. Being ſupported by the Poles, he proved very troubleſome to Boris all his lifetime; and after his death deprived Theodore Boriſſovitz, the new Czar, of the empire; after which he aſcended the throne himſelf, and married a Poliſh princeſs. However, he held the empire but a ſhort time, being killed in an inſurrection of his ſubjects; and the unhappy Czarina was ſent priſoner to Jaroſlaw.

After the death of Demetrius, Zuſki, who had conſpired againſt him, was choſen Czar; but rebellions continually taking place, and the empire being perpetually haraſſed by the Poles and Swedes, in 1610 Zuſki was depoſed, and Uladiſlaus ſon of Sigiſmund king of Poland was elected. However, the Poles repreſenting to Sigiſmund, that it would be more glorious for him to be the conqueror of Ruſſia, than only the father of its ſovereign, he carried on the war with ſuch fury, that the Ruſſians in deſpair fell upon the Poles, who reſided in great numbers at Moſcow. The Poles being well armed

49 Uladiſlaus the king of Poland's ſon elected Czar.

Russia.

armed and mostly soldiers, had greatly the advantage; however, they were on the point of being oppressed by numbers, when they fell upon the most cruel method of ensuring their success that could be devised. This was by setting fire to the city in several places; and while the distressed Russians ran to save their families, the Poles fell upon them sword in hand. In this confusion upwards of 100,000 people perished; but the event was, that the Poles were finally driven out, and lost all footing in Russia.

The expulsion of the Poles was succeeded by the election of Theodorovitz Romanov, a young nobleman of 17 years of age, whose posterity, till the accession of the present Empress, continued to enjoy the sovereignty. He died in 1646, and was succeeded by his son Alexis; whose reign was a continued scene of tumult and confusion, being harassed on all sides by external enemies, and having his empire perpetually disturbed by internal commotions.

The sources of these commotions were found in the multiplicity and inconsistency of the laws at that period, and in the jarring claims of the nobles on the borders. An *emannoy ukase*, or personal order, which is an edict of the sovereign, signed with his own hand, is the only law of Russia. These edicts are as various as the opinions, prejudices, passions, or whims of men; and in the days of Alexis they produced endless contentions. To remedy this evil, he made a selection, from all the edicts of his predecessors, of such as had been familiarly current for a hundred years; presuming that those either were founded in natural justice, or during so long a currency had formed the minds of the people to consider them as just. This digest, which he declared to be the common law of Russia, and which is prefaced by a sort of institute, is the standard law-book at this day known by the title of the *Ulogenie* or *Sudebnik*; and all edicts prior to it were declared to be obsolete. He soon made his *novelle*, however, more bulky than the Ulogenie; and the additions by his successors are beyond enumeration. This was undoubtedly a great and useful work; but Alexis performed another still greater.

Though there are many courts of judicature in this widely extended empire, the emperor has always been lord paramount, and could take a cause from any court immediately before himself. But as several of the old nobles had the remains of principalities in their families, and held their own courts, the sovereign or his ministers, at a distance up the country, frequently found it difficult to bring a culprit out of one of these hereditary feudal jurisdictions, and try him by the laws of the empire. This was a very disagreeable limitation of imperial power; and the more so, that some families claimed even a right to repledge. A lucky opportunity offered of settling this dispute; and Alexis embraced it with great ability.

Some families on the old frontiers were taxed with their defence, for which they were obliged to keep regiments on foot; and as they were but scantily indemnified by the state, it sometimes required the exertion of authority to make them keep up their levies. When the frontiers, by the conquest of Casan, were far extended, those gentlemen found the regiments no longer burdensome, because by the help of false musters, the former scanty allowance much more than reimbursed them for the expence of the establishment. The consequence was, that disputes arose among them about the right of guarding certain districts, and law-suits were necessary to settle their respective claims. These were tedious and intricate. One claimant showed the order of the court, issued a century or two back, to his ancestor for the marching of his men, as a proof that the right was then in his family. His opponent proved, that his ancestors had been the real lords of the marches; but that, on account of their negligence, the court had issued an *emannoy ukase* to the other, only at that particular period. The emperor ordered all the family archives to be brought to Moscow, and all documents on both sides to be collected. A time was set for the examination; a fine wooden court house was built; every paper was lodged under a good guard; the day was appointed when the court should be opened and the claims heard; but that morning the house, with all its contents, was in two hours consumed by fire. The emperor then said, "Gentlemen, henceforward your ranks, your privileges, and your courts, are the nation's, and the nation will guard itself. Your archives are unfortunately lost, but those of the nation remain. I am the keeper, and it is my duty to administer justice for all and to all. Your ranks are not private, but national; attached to the services you are actually performing. Henceforward Colonel Baturlin (a private gentleman) ranks before Captain Viazemsky (an old prince)."

This constitution, which established the different ranks of Russia as they remain to this day, is by Voltaire ascribed to Peter: but it was the work of Alexis; who, when the situation of himself and his country is considered, must be allowed to have been a great and a good man. He died in 1676, and was succeeded by his son Theodore Alexiovitz; who after an excellent reign, during the whole of which he exerted himself to the utmost for the good of his subjects, died in 1682, having appointed his brother Peter I. commonly called *Peter the Great*, his successor. See PETER I.

Alexis's constitution with respect to ranks still remains in Russia.

Accession of Peter the Great.

Theodore had another brother named *John*: but as he was subject to the falling-sickness, the Czar had preferred Peter, though very young, to the succession. But through the intrigues of the princess Sophia, sister to Theodore, a strong party was formed in favour of John; and soon after both John and Peter were proclaimed sovereigns of Russia under the administration of Sophia herself, who was declared regent. However, this administration did not continue long; for the princess regent having conspired against Peter, and having the misfortune to be discovered, was confined for life in a convent. From this time also John continued to be only a nominal sovereign till his death, which happened in 1696, Peter continuing to engross all the power.

It is to this emperor that Russia is universally allowed to owe the whole of her present greatness. The private character of Peter himself seems to have been but very indifferent. Though he had been married in his eighteenth year to a young and beautiful princess, he was not sufficiently restrained by the solemn ties of wedlock; and he was besides too much addicted to feasting and drunkenness, the prevailing vice of his country, that nobody could have imagined him capable of effecting the reformation upon his subjects which he actually accomplished. In spite of all disadvantages, however, he

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he applied himſelf to the military art and to civil government. He had alſo a very ſingular natural defect, which, had it not been conquered, would have rendered him for ever incapable of accompliſhing what he afterwards did. This was a vehement dread of water; which is thus accounted for. When he was about five years of age, his mother went with him in a coach, in the ſpring-ſeaſon; and paſſing over a dam where there was a conſiderable water-fall, whilſt he lay aſleep in her lap, he was ſo ſuddenly awaked and frightened by the ruſhing of the water, that it brought a fever upon him; and after his recovery he retained ſuch a dread of that element, that he could not bear to ſee any ſtanding water, much leſs to hear a running ſtream. This averſion, however, he conquered by jumping into water; and afterwards became very fond of that element.

57 He removes the defects of his education;

Being aſhamed of the ignorance in which he had been brought up, he learned almoſt of himſelf, and without a maſter, enough of the High and Low Dutch languages to ſpeak and write intelligibly in both. He looked upon the Germans and Hollanders as the moſt civilized nations; becauſe the former had already erected ſome of thoſe arts and manufactures in Moſcow, which he was deſirous of ſpreading throughout his empire; and the latter excelled in the art of navigation, which he conſidered as more neceſſary than any other. During the adminiſtration of the princeſs Sophia, he had formed a deſign of eſtabliſhing a maritime power in Ruſſia; which he accompliſhed by the means which we have recorded in his life.

58 And is ſucceſsful in an expedition against the Turks.

Having reformed his army, and introduced new diſcipline among them, he led his troops againſt the Turks; from whom, in 1696, he took the fortreſs of Azov, and had the ſatisfaction to ſee his fleet defeat that of the enemy. On his return to Moſcow were ſtruck the firſt medals which had ever appeared in Ruſſia. The legend was, "PETER THE FIRST, *the auguſt emperor of Ruſſia.*" On the reverſe was Azov, with theſe words, *Victorious by fire and water.* Notwithſtanding this ſucceſs, however, Peter was very much chagrined at having his ſhips all built by foreigners; having beſides as great an inclination to have an harbour on the Baltic as on the Euxine Sea. Theſe conſiderations determined him to ſend ſome of the young nobility of his empire into foreign countries, where they might improve. In 1697 he ſent 60 young Ruſſians into Italy; moſt of them to Venice, and the reſt to Leghorn, in order to learn the method of conſtructing their galleys. Forty more were ſent out by his direction for Holland, with an intent to inſtruct themſelves in the art of building and working large ſhips: others were appointed for Germany, to ſerve in the land-forces, and to learn the military diſcipline of that nation. At laſt he reſolved to travel through different countries in perſon, that he might have the opportunity of profiting by his own obſervation and experience. Of this journey we have given a ſhort account elſewhere; and ſhall here only add, that in executing his great deſign, he lived and worked like a common carpenter. He laboured hard at the forges, rope-yards, and at the ſeveral mills for the ſawing of timber, manufacturing of paper, wire-drawing, &c. In acquiring the art of a carpenter, he began with purchaſing a boat, to which he made a maſt himſelf, and by degrees he executed every part of the conſtruction of a ſhip.

59 Sends ſome young noblemen into foreign countries;

60 And makes the tour of Europe himſelf.

Beſides this, Peter frequently went from Sweden to Amſterdam, where he attended the lectures of the celebrated Ruyſch on anatomy. He alſo attended the lectures of burgomaſter Witſen on natural philoſophy. From this place he went for a few days to Utrecht, in order to pay a viſit to King William III. of England; and on his return ſent to Archangel a 60 gun ſhip, in the building of which he had aſſiſted with his own hands. In 1698 he went over to England, where he employed himſelf in the ſame manner as he had done in Holland. Here he perfected himſelf in the art of ſhip-building; and having engaged a great number of artificers, he returned with them to Holland; from whence he ſet out for Vienna, where he paid a viſit to the emperor; and was on the point of ſetting out for Venice to finiſh his improvements, when he was informed of a rebellion having broken out in his dominions. This was occaſioned by the ſuperſtition and obſtinacy of the Ruſſians, who having an almoſt invincible attachment to their old ignorance and barbariſm, had reſolved to dethrone the Czar on account of his innovations. But Peter arriving unexpectedly at Moſcow, quickly put an end to their machinations, and took a moſt ſevere revenge on thoſe who had been guilty. Having then made great reformations in every part of his empire, in 1700 he entered into a league with the kings of Denmark and Poland againſt Charles XII. of Sweden. The particulars of this famous war are related under the article SWEDEN. Here we ſhall only obſerve, that, from the concluſion of this war, Sweden ceaſed not only to be a formidable enemy to Ruſſia, but even loſt its political conſequence in a great meaſure altogether.

61 Is obliged by a rebellion to return to his own dominions.

62 His war with Sweden.

Peter applied himſelf to the cultivation of commerce, arts, and ſciences, with equal aſſiduity as to the purſuits of war; and he made ſuch acquiſitions of dominion even in Europe itſelf, that he may be ſaid, at the time of his death, to have been the moſt powerful prince of his age. He was unfortunate in the Czarovitz his eldeſt ſon, whom he contrived to get rid of by the forms of juſtice (ſee PETER I. note B), and then ordered his wife Catharine to be crowned with the ſame magnificent ceremonies as if ſhe had been a Greek empreſs, and to be recogniſed as his ſucceſſor; which ſhe accordingly was, and mounted the Ruſſian throne upon the deceaſe of her huſband. She died, after a glorious reign, in 1727, and was ſucceeded by Peter II. a minor, ſon to the Czarovitz. Many domeſtic revolutions happened in Ruſſia during the ſhort reign of this prince; but none was more remarkable than the diſgrace and exile of Prince Menzikoff, the favourite general in the two late reigns, and eſteemed the richeſt ſubject in Europe. Peter died of the ſmall-pox in 1730.

63 His aſſiduous ſpirit of improvement.

64 He ſettles the crown on his wife Catharine I.

Notwithſtanding the deſpotiſm of Peter the Great and his wife, the Ruſſian ſenate and nobility, upon the death of Peter II. ventured to ſet aſide the order of ſucceſſion which they had eſtabliſhed. The male iſſue of Peter was now extinguiſhed; and the duke of Holſtein, ſon to his eldeſt daughter, was by the deſtination of the late empreſs intitled to the crown: but the Ruſſians, for political reaſons, filled their throne with Anne ducheſs of Courland, ſecond daughter to John, Peter's eldeſt brother; though her elder ſiſter the ducheſs of Mecklenburgh was alive. Her reign was extremely proſperous; and though ſhe accepted of the crown under

65 Anne ducheſs of Courland called to the throne.

der limitations that some thought derogatory to her dignity, yet she broke them all, asserted the prerogative of her ancestors, and punished the aspiring Dolgorucki family, who had imposed upon her limitations, with a view, as it is said, that they themselves might govern. She raised her favourite Biron to the duchy of Courland; and was obliged to give way to many severe executions on his account. Upon her death in 1740, John, the son of her niece the princess of Mecklenburgh, by Antony Ulric of Brunswic Wolfenbuttel, was, by her will, intitled to the succession: but being no more than two years old, Biron was appointed to be administrator of the empire during his nonage. This destination was disagreeable to the princess of Mecklenburgh and her husband, and unpopular among the Russians. Count Munich was employed by the princess of Mecklenburgh to arrest Biron; who was tried, and condemned to die, but was sent in exile to Siberia.

66 Elizabeth daughter of Peter I. ob. the 6.

The administration of the princess Anne of Mecklenburgh and her husband was, upon many accounts, but particularly that of her German connections, disagreeable not only to the Russians, but to other powers of Europe; and notwithstanding a prosperous war they carried on with the Swedes, the princess Elizabeth, daughter by Catharine to Peter the Great, formed such a party, that in one night's time she was declared and proclaimed empress of the Russias; and the princess of Mecklenburgh, her husband, and son, were made prisoners.

67 Her reign uncommon-ly glorious.

Elizabeth's reign may be said to have been more glorious than that of any of her predecessors, her father excepted. She abolished capital punishments, and introduced into all civil and military proceedings a moderation till her time unknown in Russia: but at the same time she punished the counts Munich and Osterman, who had the chief management of affairs during the late administration, with exile. She made peace with Sweden; and settled the succession to that crown, as well as to her own dominions, upon the most equitable foundation. Having gloriously finished a war, which had been stirred up against her with Sweden, she replaced the natural order of succession in her own family, by declaring the duke of Holstein-Gottorp, who was descended from her elder sister, to be her heir. She gave him the title of grand duke of Russia; and soon after her accession to the throne, she called him to her court; where he renounced the succession to the crown of Sweden, which undoubtedly belonged to him, embraced the Greek religion, and married a princess of Anhalt-Zerbst, by whom he had a son, who is now heir to the Russian empire.

Few princes have had a more uninterrupted career of glory than Elizabeth. She was completely victorious over the Swedes. Her alliance was courted by Great Britain at the expence of a large subsidy; but many political, and some private reasons, it is said, determined her to take part with the house of Austria against the king of Prussia in 1756. Her arms alone gave a turn to the success of the war, which was in disfavour of Prussia, notwithstanding that monarch's amazing abilities both in the field and cabinet. Her conquests were such as portended the entire destruction of the Prussian power, which was perhaps saved only by her critical death on January 5. 1762.

Elizabeth was succeeded by Peter III. grand prince of Russia and duke of Holstein; a prince whose conduct has been variously represented. He mounted the throne possessed of an enthusiastic admiration of his Prussian majesty's virtues; to whom he gave peace, and whose principles and practices he seems to have adopted as the directories of his future reign. He might have surmounted the effects even of those peculiarities, unpopular as they then were in Russia; but it is said, that he aimed at reformations in his dominion, which even Peter the Great durst not attempt; and that he even ventured to cut off the beards of his clergy. He was certainly a weak man, who had no opinions of his own, but childishly adopted the sentiments of any person who took the trouble to teach him. His chief amusement was buffoonery; and he would sit for hours looking with pleasure at a merry-andrew singing drunken and vulgar songs. He was a stranger to the country, its inhabitants, and their manners; and suffered himself to be persuaded by those about him, that the Russians were fools and beasts unworthy of his attention, except to make them, by means of the Prussian discipline, good fighting machines. These sentiments regulated his whole conduct, and prepared the way for that revolution which improprieties of a different kind tended to hasten.

Russia. 68 Character of her successor Peter III.

Becoming attached to one of the Vorontzoff ladies, sister to the princess Dashkoff, he disgusted his wife, who was then a lovely woman in the prime of life, of great natural talents and great acquired accomplishments; whilst the lady whom he preferred to her was but one degree above an idiot. The princess Dashkoff, who was married to a man whose genius was not superior to that of the emperor, being *dame d'honneur* and lady of the bedchamber, had of course much of the empress's company. Similarity of situations knit these two illustrious personages in the closest friendship. The princess being a zealous admirer of the French *œconomistes*, could make her conversation both amusing and instructive. She retailed all her statistical knowledge; and finding the empress a willing hearer, she spoke of her in every company as a prodigy of knowledge, judgment, and philanthropy. Whilst the emperor, by his buffoonery and attachment to foreign manners, was daily incurring more and more the odium of his subjects, the popularity of his wife was rapidly increasing; and some persons about the court expressed their regret, that so much knowledge of government, such love of humanity, and such ardent wishes for the prosperity of Russia, should only furnish conversations with Catharina Romanovna*. The empress and her favourite did not let these expressions pass unobserved: they continued their studies in concert; and whilst the former was employed on her famous code of laws for a great empire, the latter always reported progress, till the middling circles of Moscow and St Petersburgh began to speak familiarly of the blessings which they might enjoy if these speculations could be realized.

69 Behaviour of the empress and princess Dashkoff.

* The Princess Dashkoff.

70 Peter's unpopular conduct at length disgusts the military.

Meanwhile Peter III. was giving fresh cause of discontent. He had recalled from Siberia count Munich, who was indeed a sensible, brave, and worthy man; but as he was smarting under the effects of Russian despotism, and had grounds of resentment against most of the great families, he did not much discourage the emperor's unpopular conduct, but only tried to moderate it and give it a system. Peter, however, was impatient.

He

Russia.

He publicly ridiculed the exercise and evolutions of the Russian troops; and hastily adopting the Prussian discipline, without digesting and fitting it for the constitution of his own forces, he completely ruined himself by disgusting the army.

71 They are easily gained over to the party of Catharine.

What he lost was soon and easily gained by the emissaries of Catharine. Four regiments of guards, amounting to 8000 men, were instantly brought over by the three brothers Orloff, who had contrived to ingratiate themselves with their officers. The people at large were in a state of indifference, out of which they were roused by the following means. A little manuscript was handed about, containing principles of legislation for Russia, founded on natural rights, and on the claims of the different classes of people which had insensibly been formed, and become so familiar as to appear natural. In that performance was proposed a convention of deputies from all the classes, and from every part of the empire, to converse, but without authority, on the subjects of which it treated, and to inform the senate of the result of their deliberations. It passed for the work of her majesty, and was much admired.

72 Who stood high in the public estimation.

While Catharine was thus high in the public esteem and affection, the emperor took the alarm at her popularity, and in a few days came to the resolution of confining her for life, and then of marrying his favourite. The servants of that favourite betrayed her to her sister, who imparted the intelligence to the empress. Catharine saw her danger, and instantly formed her resolution. She must either tamely submit to perpetual imprisonment, and perhaps a cruel and ignominious death, or contrive to hurl her husband from his throne. No other alternative was left her; and the consequence was what undoubtedly was expected. The proper steps were taken; folly fell before abilities and address, and in three days the revolution was accomplished.

73 A revolution in her favour quickly accomplished.

When the emperor saw that all was lost, he attempted to enter Cronstadt from Oranienbaum, a town on the gulph of Finland, 39 versts, or near 26 miles from Petersburgh. The sentinels at the harbour presented their muskets at the barge; and though they were not loaded, and the men had no cartridges, he drew back. The English sailors called from ship to ship for some person to head them, declaring that they would take him in and defend him; but he precipitately withdrew. Munich received him again at Oranienbaum, and exhorted him to mount his horse and head his guards, swearing to live and die with him. He said, "No: I see it cannot be done without shedding much of the blood of my brave Holsteinians. I am not worthy of the sacrifice." The revolution was settled, and Catharine declared *autocratrix*. The crown was said to be pressed upon her, and her son was proclaimed *her* heir, and *as such* great duke of all the Russias.

74 Her magnanimous and moderate behaviour.

She behaved with magnanimity and moderation; retained Munich; even pardoned countess Voronzoff the emperor's favourite; and afterwards, on her marriage with Mr Paulotsky, made a handsome settlement on them. She allowed the expectations of golden days and a philosophical government to become the subject of fashionable conversation; and the princess Dashkoff (c) was completely happy. The convention of deputies was even resolved on; and as they were not to be elected by the people, except here and there for the show, Prince Galitzin and Count Panin, whom she had completely gained over, and who had the greatest abilities of any Russians about court, were at immense pains in appointing a proper set. In the mean time, a great number of showy patriotic projects were begun. A grave English clergyman was invited over to superintend the institution of schools for civil and moral education; and the empress was most liberal in her appointments. This institution failed, however, to produce the effects expected from it. The clergyman appointed, though a most excellent character and real philanthropist, had views too contracted for the sphere in which he was placed; and Mr Betskoy, the Russian *Mæcenas*, to whom the empress referred him for instructions, preferred declamation, and stage-playing, and bullets, to all other accomplishments.

75 She institutes schools.

76 And sends the nobles a travelling.

In the mean time, elegance of all kinds was introduced before the people were taught the principles of morals. The nobles were sent a travelling; and as the Russians more easily acquire foreign languages than the people of most other nations, have great vivacity without flippancy, and in general understand play, these travellers were everywhere well received, especially at Paris, where reasons of state contributed not a little to procure to them that attention with which they were treated. They were ravished with the manners of foreign courts, and imported fashions and fineries without bounds. The sovereign turned all this to her own account by encouraging a dissipation which rendered court favours necessary, and made the people about her forget their Utopian dreams.

77 Convention of deputies assembled, and the issue.

The convention of deputies at last assembled in the capital. The empress's book of instructions (D) came forth; and by some great things were doubtless expected. The most consequential of the deputies were privately instructed to be very cautious, and informed that carriages and guards were ready for Siberia. There was a grand procession at their presentation. Each had the honour of kissing her majesty's hand and receiving a gold medal. They met in form to recognise one another,

(c) This lady, during the progress of the revolution, certainly acted either from the most disinterested patriotism or the most generous friendship. She might have taken part with the emperor, and directed the counsels of the empire; for her sister, on whom he doated, acknowledged her superiority, and wanted nothing but pleasure. Between them they could easily have governed such a man as Peter III. but Catharine Romanovna was a theoretical enthusiast, who loved the empress because she thought her a philosopher and philanthropist; and perhaps she might entertain hopes of directing the conduct of Catharine II. as she had formerly assisted her in her patriotic studies.

(D) It is intitled, *Instructions for the Deputies to consult about a New Code of Laws*, &c. and is a very respectable work, which does honour to the empress, by whom it was undoubtedly composed.

other, then parted, and have never met since. The thing melted away without notice; and the Princess Dashkoff was handsomely given to understand, that her counsels were no longer necessary, and that she could not do better than take the amusements of the tour of Europe. She was liberally supplied, and has ever since been treated with great kindness, but kept amused with something very different from legislation.

In the mean time, many patriotic things were really done. Taxes were frequently remitted where they were burthensome. Every person was declared free who had served government without pay for two years. No man was allowed to send boors from his cultivated estates to his mines in Siberia, nor to any distant estates, but for the purposes of agriculture. Many colonies of German peasants were in various places settled on the crown-lands, to teach the natives the management of the dairy; a branch of rural economy of which the Russians were till that period so completely ignorant, that there is not in their language an appropriated word for *butter*, or *cheese*, or even for *cream*.

The Russians hoped to be likewise instructed in agriculture; but the colonists were poor and ignorant; and this part of the project came to nothing, like the great national schools. Other improvements however took place in favour of commerce; for all barriers were removed, and goods suffered to pass through the empire duty-free. The empress with great liberality encouraged the introduction of arts and manufactures. An academy was instituted of sculpture, painting, and architecture, &c. a magnificent and elegant building was erected for it, and many eleves supported in it at the expence of the crown. Several very promising youths have been educated in that academy; but as the Russians are childishly fond of finery, and cannot be persuaded that any thing fine was ever done by their own countrymen, the students are all, on leaving the academy, suffered to starve.

The empress, who has a very just taste in architecture, has herself designed several buildings equally useful and ornamental to her capital (see NEVA and PETERSBURGH); and while she has thus diligently cultivated the arts of peace, she has not neglected those of war. She put her fleets on the most respectable footing, and procured a number of British officers to instruct her seamen in the science of naval tactics. By land, her successes against the Turks, the Swedes, and the Poles (see TURKEY, SWEDEN, and POLAND), compel us to believe, that her troops are better disciplined, and her generals more skilful, than any whom the greatest of her predecessors could bring into the field; and perhaps it is not too much to say, that the empire of Russia, though the people are but just emerging from a state of barbarism, is at this day the most powerful in Europe.

Russia is divided into two great parts by a range of mountains called *Oural*, or the *Bel*, which, through the whole breadth of it, form one continual uninterrupted barrier, dividing Siberia from the remaining Russia.—That part of Russia which lies on this side of the Oural mountains presents a very extensive plain verging westward by an easy descent. The vast extent of this plain has a great variety of different climates, soils, and products. The northern part of it is very woody, marshy, and but little fit for cultivation, and has a sensible declivity towards the White and the Frozen Seas. The other part of this vast plain includes the whole extent along the river Volga as far as the deserts, extending by the Caspian and the Azov Seas, and constitutes the finest part of Russia, which in general is very rich and fruitful, having more arable and meadow land than wood, marshes, or barren deserts. Russia.

The part lying on the other side of the Oural mountains, known by the name of Siberia, is a flat tract of land of considerable extent, declining imperceptibly towards the Glacial Sea, and equally by imperceptible degrees rising towards the south, where at last it forms a great range of mountains, constituting the borders of Russia on the side of China. Between the rivers Irtish, Obè, and the Altay mountains, there is a very extensive plain, known by the name of *Barabinsky Steppe*, viz. the deserts of Baraba, the northern part of which is excellent for agriculture; but the southern part, on the contrary, is a desert full of lands and marshes, and very unfit for cultivation. Between the rivers Obe and Enissey there is more woodland than open ground; and the other side of the Enissey is entirely covered with impervious woods, as far as the lake Baical; but the soil is fruitful everywhere; and whenever the trouble has been taken of clearing it of the wood, and of draining it from unnecessary water, it proves to be very rich, and fit for cultivation; and the country beyond the Baical is surrounded by ridges of high stony mountains. Proceeding on farther towards the east, the climate of Siberia becomes by degrees more and more severe, the summer grows shorter, the winter longer, and the frosts prove more intense.

With respect to the variety of climates, as well as the produce of the earth, Russia naturally may be divided into three regions or divisions, viz. into the northern, middle, and southern divisions. Variety of climates.

These were about 20 years ago subdivided into different governments, for the better administration of justice.

The northern division, beginning from the 57th degree of latitude, extends to the end of the Russian dominions on the north, and includes the governments of St Petersburgh, Riga, Revel, Vyborg, Pleov, Novogorod, Tver, Olonetz, Archangel, Vologda, Yaroslavl, Kostroma, Viatka, Perme, and Tobolsk. The middle division is reckoned from the 57th to the 51st degree of latitude, and includes the governments of Moscow, Smolensk, Polotsk, Mogilev, Tchernigov, Novogorod-Severskoy, Kharkov, Voronez, Koursk, Orel, Kaluga, Toula, Riazane, Vladimir, Nizni-Novogorod, Tambov, Saratov, Penza, Simbirsk, Kazane, Oufa, Kolhivane, and Irkoutsk. The southern division begins at the 51st degree of latitude, and extends to the end of Russia on the south, including the governments of Kiev, Ekatherinoslav, Caucasus, and the province of Taurida. To this may be added the habitations of the Cossacks of the Don.

The northern division, though deficient in grain, fruit, and garden vegetables, has the preference before the other two in the abundance of animals, rare and valuable for their furs; in rides of particular sorts, very useful for different purposes of life; in cattle, and metals of interior kinds, &c. The middle division of Russia abounds in different kinds of grain, hemp, flax, cattle,

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cattle, fiſh, bees, timber proper for every uſe, different kinds of wild beaſts, metals, both of ſuperior as well as of inferior kind, different precious ſtones, &c. This diviſion is likewiſe moſt convenient for the habitation of mankind, on account of the temperature and pleaſantneſs of the air. The ſouth diviſion has not that abundance of grain, but has the preference in different delicate kinds of fruit, quantity of fiſh, cattle, and wild animals, amongſt which there are ſeveral ſpecies different from thoſe which are found in the middle diviſion. It exceeds greatly both the other diviſions in plants and roots fit for dying and for medical purpoſes, as well as for the table; neither is it deprived of precious ſtones, as well as different metals.

The products of thoſe three diviſions conſtitute the permanent and inexhauſtible riches of Ruſſia; for, beſides what is neceſſary for home conſumption, there is a great quantity of thoſe products exported yearly into foreign countries to the amount of ſeveral millions of rubles. Theſe productions are brought from different places to fairs, eſtabliſhed in different parts of Ruſſia, where the merchants buy them up, and forward them to different ports, and other trading towns, for exportation into foreign kingdoms. Theſe fairs are likewiſe the places where a conſiderable quantity of goods imported from foreign kingdoms is diſpoſed of. The principal yarmankas, that is, fairs, are the yarmanka Makarievſkaya, Korennaya, and Irbitſkaya.

84 External commerce of Ruſſia

The external commerce of Ruſſia may be divided into two different branches; 1ſt, The commerce with the European nations, which is carried on by buying and ſelling goods either for ready money or upon credit. 2d, The commerce with the Aſiatic nations, which is conducted by barter or exchange of goods.

The principal ports belonging to the firſt part of Ruſſia are, on the Baltic ſea, St Peterſburgh, Riga, Vyborg, Revel, Narva, Frederickſham, and the Baltic port; Archangel on the White ſea, and Kola on the Northern Ocean; Taganrog on the ſea of Azov; Kherſon, Sevaſtopole, Balaklava, Soudak, Theodoſia, Kerche, and Phanagoria on the Black ſea, beſides others of ſmaller note. In theſe ports commerce is carried on, as well as in ſeveral trading towns ſituated on the frontiers of Poland, Sweden, and Turkey.

85 With Europe

The products of Ruſſia exported into the different European kingdoms conſiſt chiefly in hemp, flax, different kinds of grain, tallow, hides, ſail-cloth, iron, timber, linſeed, butter, hemp-oil, train-oil, wax, potaſhes, tar, tobacco, briſtles, linens, peltry, and other goods, the greateſt part of which is exported chiefly by way of St Peterſburgh, Riga, and Archangel; and in return from the European kingdoms they receive woollen cloths, different kinds of goods made of worſted, ſilk, cotton, and thread; wines and beer, white and moiſt ſugars, ſilks, cotton unwrought, and yarn; French brandy, liquors, arrack, ſhrub, different iron tools, and toys; gold and ſilver in bars, in foreign money, and in other things; brilliants, pearls, galanterie goods, coffee, colours; peltry, viz. beaver and otter ſkins; herrings, ſtock-fiſh, ſalt, tobacco, different trees, oil, horſes, china and earthen ware, &c. The greateſt part of theſe goods is imported through the ports of St Peterſburgh and Riga, but a conſiderable quantity is likewiſe admitted by land through different frontier cuſtom-houſes.

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86 And Aſia

The principal goods exported into Aſia are partly the products of Ruſſia, and partly imported from other European kingdoms, and conſiſt of peltry and hides. The other goods are woollen cloths, bays, borax, bottles, printed linens, iron, and different kinds of ironware, calamancos, kerſeys, glue, iſinglaſs, cochineal, indigo, laura, tinſel, gold and ſilver lace, ſoap; all kinds of arms, as piſtols, guns, ſabres; different kinds of linens, printed and glazed, ſtriped linen, ticking, pallock, craſh, &c. From the Aſiatic kingdoms they import different ſilk goods, raw ſilk, cotton, ſilk-wove ſtuffs, gold and ſilver in bars and in coin, cattle, horſes, &c.

87 Mountain &c.

The mountains within Ruſſia, as well as thoſe on its frontiers, abound with minerals of various kinds. Gold, ſilver, quickſilver, copper, lead, iron-ore, very powerful loadſtones, mountain-cryſtal, amethyſt, topazes of different ſorts, agates, cornelian, beryl, chalcedony, onyx, porphyry, antimony, pyrites, aquamarines, chryſolites, ophites, and lapis lazuli, are found in them, beſides marble, granite, trappe, maria or Muſcovy glaſs, of remarkable ſize and clearneſs, baſaltes, and coal, &c.; and in every part of Siberia, but particularly in the plains of it, are found bones of animals uncommonly large, mammoth's teeth (ſee MAMMOTH), and other foſſils.

88 Lakes.

In the Ruſſian empire are many lakes of very large extent. 1. The Ladoga, anciently called *Nevo*, is the largeſt lake in Europe, extending in length 175 and in breadth 105 verſts; or it is 116 Engliſh miles long and near 70 broad. It lies between the governments of St Peterſburgh, Olonetz, and Vyborg; and communicates with the Baltic ſea by the river Neva, with the Onega lake by the river Svir, and with the Ilmen lake by the river Volkov. Several conſiderable rivers fall into it, as the Paſha, Sias, Oyat, and others. The Ladoga canal is made near this lake. 2. The Onega lake is ſituated in the government of Olonetz. It it above 200 verſts long, and the greateſt width of it does not exceed 80 verſts. 3. The Tchude lake, or Peipus, lies between the governments of St Peterſburgh, Pſcov, Revel, and Riga. It is near 80 verſts long and 60 broad. It joins to the lake of Pſcov by a large neck of water. The length of this lake is 50 and the width about 40 verſts. The river Velikaya flows into it. The river Narova comes out of the lake Peipus, which by the river Embakha communicates with the lake Wirtz-Erve, and from this latter flows the river Fellin, and runs into the bay of Riga. 4. The Ilmen lake, anciently called *Moiſk*, lies in the government of Novogorod. Its length is 40 and width 30 verſts. The rivers Mſta, Lovate, Shelone, and others, fall into it; and only one river, Volkov, runs out of it, by which it is joined with the Ladoga lake. 5. The Bielo-Ozero, that is, the White Lake, lies in the government of Novogorod. It extends 50 verſts in length, and about 30 in width. There are many ſmall rivers which run into it; but only one river, Shekſna, comes out of it, and falls into the river Volga. 6. The Altin, or Altay lake, otherwiſe called the *Teleiſk Lake*, is ſituated in the government of Kolhivane. It extends in length 126 and in width about 84 verſts. The river Biya comes out of it, which being joined to the river Katounya, conſtitute the river Obè. 7. The Baical Lake, otherwiſe called the *Baical Sea*, and the *Holy Sea*, lies in the government of Irkoutſk. Its extent in length is 600, and in width from

Russia. 30 to 50 verſts, and in the wideſt places as far as 70 verſts. 8. The Tchani Lake lies in the deſerts of Baraba, between the rivers Obè and Irtiſh. It joins with a great many ſmaller lakes, occupies a vaſt tract of land, and abounds very much in fiſh. 9. Between the Gulf of Finland and the White Sea there are ſeveral lakes which extend from 50 to 70 verſts in length; and beſides theſe there are many other ſalt lakes in different parts of Ruſſia, ſuch as the Ozero, that is, the lake Eltonſkoye, Bogdo, Inderſkoye, Ebele, Koryakovſkoye, Yamiſhevſkoye, Borovye, and others; and the ſalt which is got from them ſerves for the uſe of the greateſt part of the empire. To theſe may be added the Caſpian, which, though called a ſea, is more properly a lake, as it has no communication with the ocean either viſible or ſubterraneous. See *Caspian-Sea*, and Pneumatics, n° 277.

89 Rivers. Ruſſia boaſts likewiſe of a conſiderable number of large and famous rivers. Of the Dvina or Dwina, the Neva, Dnieper or Nieper, the Don, the Volga, the Irtis, the Onega, the Oby, and the Lena, the reader of this work will find ſome account under their reſpective names; but in this vaſt empire there are many other rivers worthy of notice, tho' not perhaps of ſuch minute deſcription. Among theſe the *Boug*, or, as it is ſometimes written, *Bog*, riſes in Poland; then directing its courſe to the ſouth-eaſt, it divides the government of Ecatherinoſlav from the deſerts of Otchakov, now belonging to Ruſſia, and falls into the Liman, which communicates with the Black ſea.

The Kubane conſiſts of many ſprings or rivulets running out of the Caucaſian mountains, and divides itſelf into two branches, the one of which falls into the Azov Sea, and the other into the Black ſea. This river, from its ſource to the end of it, conſtitutes the frontier of Ruſſia.

The Oural, formerly Yaik, takes its riſe in the Oural mountains, in the government of Oufa, which it divides from that of Caucaſus, and extends its courſe about 3000 verſts. It receives many rivers, the principal of which are the Or, Sakmara, Yleck, and Terkool.—The Kouma riſes in the Caucaſian mountains, and runs through the plains between Terek and Volga, and at laſt loſes itſelf in the ſands, before it comes to the Caſpian ſea. The Terek originates in the Caucaſian mountains, runs between them, and then coming out, extends its courſe to the Caſpian Sea, and receives ſeveral rivers, as the Malka, Soonja, Bakſan, and Ackſay.

The Bolſhaya Petchora, that is, the great Petchora, riſes in the Oural mountains, in the government of Vologda, runs acroſs the whole breadth of the government of Archangel, and falls into the Icy ſea. It receives in its courſe ſeveral rivers, the principal of which are the Outcha and the Elma. The Eniſſey is formed by the junction of two rivers, the Gulookema and the Baykema, which riſe in the Altay mountains in Mungalia. It runs through the whole extent of Siberia, and falls into the Icy Sea. The extent of the Eniſſey is about 2500 verſts. It receives in its courſe ſeveral rivers, the principal of which are the Abakan, Elogooy, Podkamennaya Tungouſka, Niznyaya Tungouſka, and Tourookhan. The Yana, the Indighirka, and the Kolhima, are likewiſe no inconſiderable rivers in the government of Irkoutſk. The firſt riſes in the mountains which overſhadow the banks of the river Lena on the right hand, and extends its courſe 800 verſts. The two laſt take their ſources in the mountains which extend on the coaſts of the Eaſtern ſea. The length of the Indighirka is 1200 and that of Kolhima 1500 verſts.—The laſt, near its mouth, is divided into two branches, and receives the rivers Omolon and Oncoy. The Anadir is the eaſternmoſt of all the rivers in Siberia. It riſes out of the lake Ioanko, in the diſtrict of Okhotſk, and runs through the eaſtern part of it, and then falls into the Eaſtern ocean. The Amour is formed by the junction of two conſiderable rivers, the Shilka and Argoonya, which are joined juſt by the frontiers of China. It runs through the Chineſe dominions, and at laſt falls into the Eaſtern ocean. The Kamtſchatka runs through the peninſula of the ſame name, extending its courſe from the Verkhney to Nizney Oſtrog, that is, from the upper to the lower fort, and falls into the Eaſtern ocean. The Penjina riſes in the Yablonnoy ridge of mountains, and falls into the Penjinikaya Gooba, that is, the gulf or the ſea of Penjina.

90 State of the weather. In ſuch a vaſt extent of country, ſtretching from the temperate ſo far into the frigid zone, the climate muſt vary conſiderably in different places. In the ſouthern parts of the Ruſſian empire, the longeſt day does not exceed fifteen hours and a half; whereas in the moſt northern, the ſun in ſummer is ſeen two months above the horizon. The country in general, though lying under different climates, is exceſſively cold in the winter. Towards the north, the country is covered near three quarters of the year with ſnow and ice; and by the ſeverity of the cold many unfortunate perſons are maimed, or periſh. This ſort of weather commonly ſets in about the latter end of Auguſt, and continues till the month of May; in which interval the rivers are frozen to the depth of four or five feet. Water thrown up into the air will fall down in icicles; birds are frozen in their flight, and travellers in their ſledges. In ſome provinces the heats of ſummer are as ſcorching as the winter colds are rigorous.

91 The ſoil of Muſcovy varies ſtill more than the climate, according to the influence of the ſun and the ſituation of the country. In the warmer provinces, the proceſs of vegetation is ſo rapid, that corn is commonly reaped in two months after it begins to appear above the ſurface of the ground. Hence the great variety of muſhrooms produced ſpontaneouſly in Ruſſia, which may be conſidered as a comfortable relief to the poor, while they appear as delicacies at the tables of the rich. Above 1000 waggon-loads of them uſed to be ſold annually in Moſcow. Perhaps it is on account of the ſcarcity of proviſions that ſuch a number of faſts are inſtituted in the Muſcovite religion.

92 And vegetable productions. Beſides the productions already mentioned as peculiar to each of the three great natural diviſions of the empire, Muſcovy yields rhubarb, flax, hemp, pulſe for cattle, wax, and honey. Among other vegetables, we find in Ruſſia a particular kind of rice called [illegible], plenty of excellent melons, and in the neighbourhood of Aſtracan the famous zoophyton, or animal plant, which the Muſcovites call *bonnaret*, or lambkin, from its reſemblance to a lamb. See the article *Scythian Lamb*.

93 Agriculture in general is but little underſtood, and [illegible] leſs proſecuted in this country. The moſt conſiderable articles in the œconomy of a Ruſſian farm are wax and honey,

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honey, by which the peasant is often enriched. He cuts down a great number of trees in the forest, and sawing the trunks into a number of parts, bores each of these, and stops up the hollow at both ends, leaving only a little hole for the admittance of the bees; thus the honey is secured from all the attempts of the bear, who is extremely fond of it, and tries many different experiments for making himself master of the luscious treasure.—Of this honey the Russians make a great quantity of strong metheglin for their ordinary drink. They likewise extract from rye a spirit, which they prefer to brandy.

94 Animals.

The wild beasts in the northern part of Russia are the same with those we have mentioned in the articles of Norway and Lapland: such as rein-deer, bears, foxes, ermins, martens, sables, hares, and squirrels In the more southern provinces the Muscovites breed black cattle, small but hardy horses, sheep, goats, and camels. The breed of cattle and horses has been enlarged by the care and under the protection of Peter and succeeding sovereigns. The whole empire abounds with wild-fowl and game of all sorts, and a variety of birds of prey; besides the different kinds of poultry, which are raised in this as well as in other countries. The external parts and provinces of Muscovy are well supplied with sea-fish from the Northern ocean, the Baltic, or gulph of Finland, the White sea, the Black sea, and the Caspian; but the whole empire is plentifully provided with fresh-water fish from the numerous lakes and rivers, yielding immense quantities of salmon, trout, pike, sturgeon, and belluga: the last being a large fish, of whose roe the best caviare is made. Innumerable insects, like those of Lapland, are hatched by the summer's heat in the sand, morasses, and forests, with which this empire abounds; and are so troublesome as to render great part of the country altogether uninhabitable.

95 Inhabitants.

The Russian empire is inhabited by no less than 16 different nations, of which our limits will hardly permit us to give the names. The first are the Sclavonic nations, comprehending the Russians, who are the predominant inhabitants of the whole empire, and the Poles, who besides occupying the countries lately wrested from the republic, live in the governments of Polatsk and Moghilev, as well as in the district of Salenghinsk and along the river Irtish. 2. The Germanic nations, comprehending the Germans properly so called, who inhabit Esthonia and Livonia; the Swedes inhabiting the Russian Finland, as well as some of the islands on the Baltic sea; and the Danes, who inhabit the islands of the Baltic sea, the Worms, and Gross or Great Roge. 3. The Lettonian or Livonian nations, under which are classed the original or real Lettonians or Letishi, inhabiting Livonia; and the Lithuanians, who live in the government of Polatsk and Moghilev. 4. The Finns, or Tchudi, nations who inhabit the governments of Viberg and St Petersburgh, with many other districts of the empire, being branched out into no fewer than 12 different tribes. 5. The Tartarian nations, who are all either Mahometans or idolaters. The Mahometan Tartars, commonly called by the Russians *Tartare*, dwell in Kazane, and the places adjacent; at Kesimov; at Ouse, in the government of Parma; at Tomsk and its neighbourhood, and are in general a sober, industrious, cleanly, and generous people. The other Tartars inhabit different parts of Siberia, and are intermixed with still different races, called after the towns, rivers, and other places to which their habitations are nearest.—They are, as we have said, idolaters, and governed by shamens. (See SHAMEN.) Besides these, there are in the Russian dominions the Nagay Tartars; the Crim-Tartars, inhabiting the Crimea, who, together with the land belonging to them, came under the subjection of Russia in 1783; the Mescheraki; the Bashkirs; the Kirghistzi or Kirghis-kaisaks; the Yakouti; and the white Kalmuks. 6. The Caucasian nations, which are six in number, and are each subdivided into many different tribes, of which it is probable that few of our readers have ever heard the names, except of the Circassians, who live in different settlements bordering on the river Kubane. 7. The Samoyeds or Samoeds, comprehending the Ostiacks *. These inhabit the northernmost part of Russia, along the coast of the Icy sea.— 8. The Mungalian nations, comprehending the original Mungals, who are chiefly dispersed in the deserts of Gobey; the Bourati, who live on the banks of the Baikal, and other places in the government of Irkoutsk; and the Kalmuks, consisting of four different tribes.—All these hordes speak the Mungalian language, observe the religion of Lama and the Kalmuks live in large tents. 9. The Tongoosi, a very populous tribe, dispersed from the river Enissey as far as the sea of Okhotsk, and from the Penjinskaya Gooba beyond the Chinese frontier. They are all idolaters, and live by hunting and fishing. 10. The Kamtchadels. 11. The Koriaki. 12. The Kouriltzi. Of these three nations we have given some account under the article KAMTSCHATKA. 13. The Aleouti, who dwell in the islands between Siberia and America, and very much resemble the Esquimaux and the inhabitants of Greenland.—They live in large huts, and seem to be idolaters.—14. The Arintzi, a very numerous people scattered in the government of Kolhivane. 15. The Yukaghiri, who are dispersed on the coasts of the Glacial sea, about the rivers Yana, Kolhima, and Lena, and as far as the source of the Anadir. 16. The Tchonktchi, who occupy the north-eastern part of Siberia, between the rivers Kolhima and Anadir. Besides these sixteen different nations, there are scattered through the Russian empire vast numbers of Buckharian Tartars, Persians, Georgians, Indians, Greeks, Servians, Albanians, Bulgarians, Moldavians, Valekians, Armenians, and Jews.

*See Ostiacks.

96 Population.

The empire of Russia is so widely extended, that notwithstanding the number of nations which it comprehends, it must be considered as by no means populous. At the last revision it was found to contain 26 millions of souls; but it is to be observed, that the nobility, clergy, land as well as sea forces, different officers, servants belonging to the court, persons employed under government in civil and other offices; the students of different universities, academies, seminaries, and other schools; hospitals of different denominations; likewise all the irregular troops, the roving hordes of different tribes, foreigners and colonists, or settlers of different nations—are not included in the above-mentioned number: but with the addition of all these, the population of Russia, of both sexes, may be supposed to come near to 28 millions.

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To ſuch a vaſt variety of people, nations, and languages, it is needleſs to obſerve, that no general character can with truth be applied. The native Ruſſians are ſtigmatiſed by their neighbours as ignorant and brutal, totally reſigned to ſloth, and addicted to drunkenneſs, even in the moſt beaſtly exceſs; nay, they are accuſed of being arbitrary, perfidious, inhuman, and deſtitute of every ſocial virtue. There is not a phraſe in their language analogous to ours, "the manners or the ſentiments of a gentleman;" nor does *gentleman* with them expreſs any thing moral. Indeed they have no ſuch diſtinction. Cunning is *profeſſed* and *gloried in* by all; and the nobleman whom you detect telling a lie is vexed, but not in the leaſt aſhamed. In the whole *reglement* of the marine by Peter the Great, there is not one word addreſſed to the honour, or even to the probity, of his officers. Hopes of reward, and the conſtant fear of detection and puniſhment, are the only motives touched on. In every ſhip of war, and in every regiment, there is a fiſcal or authorized ſpy, a man of reſpectable rank, whoſe letters muſt not be opened but at the riſk of the great knout (ſee Knout); and he is required by expreſs ſtatute to give monthly reports of the behaviour of the officers and privates.

Such regulations we cannot think well adapted to improve the morals of the people; yet we believe they have been improved by the care, aſſiduity, and example of ſome of their late ſovereigns. Certain it is, the vice of drunkenneſs was ſo univerſally prevalent among them, that Peter I. was obliged to reſtrain it by very ſevere edicts, which, however, have not produced much effect. They numbered in the city of Moſcow no fewer than 4000 brandy-ſhops, in which the inhabitants uſed to ſot away their time in drinking ſtrong liquors and ſmoking tobacco. This laſt practice became ſo dangerous, among perſons in the moſt beaſtly ſtate of intoxication, that a very ſevere law was found neceſſary to prevent the pernicious conſequences, otherwiſe the whole city might have been conſumed by conflagrations. The nobility were heretofore very powerful, each commanding a great number of vaſſals, whom they ruled with the moſt deſpotic and barbarous authority: but their poſſeſſions have been gradually circumſcribed, and their power transferred in a great meaſure to the czar, on whom they are now wholly dependent.

98 Diſtinctions of rank.

At preſent there is no other degree of the nobility but that of the boyars: theſe are admitted to the council, and from among them the waivodes, governors, and other great officers, are nominated, and their ranks with reſpect to each other are regulated by the importance of their reſpective offices.

Alexis, who introduced this order of precedency, abhorred the perſonal abaſement of the inferior claſſes to their ſuperiors, which he would not accept of when exhibited to himſelf; and it may appear ſurpriſing that Peter, who deſpiſed mere ceremonials, ſhould have encouraged every extravagance of this kind. In a few years of his reign, the beautiful ſimplicity of deſignation and addreſs which his father had encouraged was forgotten, and the cumberſome and almoſt ineffable titles which diſgrace the little courts of Germany were crowded into the language of Ruſſia. He enjoined the loweſt order of gentlemen to be addreſſed by the phraſe, *your reſpectable birth*; the next rank, by *your high good birth*; the third, *your excellence*; the fourth, *your high excellence*; then came *your brilliancy* and *high brilliancy*. *Highneſs* and *majeſty* were reſerved for the great duke and the czar.

Theſe titles and modes of addreſs were ordered with all the regularity of the manual exerciſe; and the man who ſhould omit any of them when ſpeaking to his ſuperior might be lawfully beaten by the offended boyar. Before this period, it was polite and courtly to ſpeak to every man, even the heir apparent, by adding his father's name to his own; and to the great duke, Paul Petrovitz was perfectly reſpectful, or a ſingle word ſignifying *dear father*, when he was not named. Tho' pompous titles were unknown among them before the era of Peter, the ſubordination of ranks was more complete than in any other European nation; but with this ſimplicity peculiar to them and the Poles, that they had but three ranks, the ſovereign, the nobleſſe or gentry, and the ſerfs. It was not till very lately that the mercantile rank formed any diſtinction; and that diſtinction is no more than the freedom of the perſon, which was formerly a transferable commodity belonging to the boyar. Notwithſtanding this ſimplicity, which put all gentlemen on a level, the ſubſcription of a perſon holding an inferior office was not *ſervant*, but *ſlave*; and the legal word for a petition in form was *tchelobnii*, which ſignifies, "a beating with the forehead," *i.e.* ſtriking the ground with the forehead; which was actually done. The father of Alexis aboliſhed the practice; but at this day, when a Ruſſian petitions you, he touches his forehead with his finger; and if he be very earneſt, he then puts his finger to the ground.

The Ruſſian nobles formerly wore long beards, and long robes with ſtrait ſleeves dangling down to their ancles: their collars and ſhirts were generally wrought with ſilk of different colours: in lieu of hats, they covered their heads with furred caps; and, inſtead of ſhoes, wore red or yellow leathern buſkins. The dreſs of the women nearly reſembled that of the other ſex; with this difference, that their garments were more looſe, their caps fantaſtical, and their ſhift-ſleeves three or four ells in length, gathered up in folds from the ſhoulder to the fore-arm. By this time, however, the French faſhions prevail among the better ſort throughout all Muſcovy.

99 Manners and cuſtoms.

The common people are generally tall, healthy, and robuſt, patient of cold and hunger, inured to hardſhips, and remarkably capable of bearing the moſt ſudden tranſition from the extremes of hot or cold weather. Nothing is more cuſtomary than to ſee a Ruſſian, who is over-heated and ſweating at every pore, ſtrip himſelf naked, and plunge into a river; nay, when their pores are all opened in the hot bath, to which they have daily recourſe, they either practiſe this immerſion, or ſubject themſelves to a diſcharge of ſome pailfuls of cold water. This is the cuſtom of both men and women, who enter the baths promiſcuouſly, and appear naked to each other, without ſcruple or heſitation.

A Ruſſian will ſubſiſt for many days upon a little oatmeal and water, and even raw roots: an onion is a regale; but the food they generally uſe in their journeys is a kind of rye-bread, cut into ſmall ſquare pieces, and dried again in the oven: theſe, when they are hungry, they ſoak in water, and eat as a very comfortable

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fortable repaſt. Both ſexes are remarkably healthy and robuſt, and accuſtom themſelves to ſleep every day after dinner.

The Ruſſian women are remarkably fair, comely, ſtrong, and well-ſhaped, obedient to their lordly huſbands, and patient under diſcipline: they are even ſaid to be fond of correction, which they conſider as an infallible mark of their huſband's conjugal affection; and they pout and pine if it be with-held, as if they thought themſelves treated with contempt and diſregard. Of this neglect, however, they have very little cauſe to complain; the Ruſſian huſband being very well diſpoſed, by nature and inebriation, to exert his arbitrary power. Some writers obſerve, that, on the wedding-day, the bride preſents the bridegroom with a whip of her own making, in token of ſubmiſſion; and this he fails not to employ as the inſtrument of his authority. Very little ceremony is here uſed in match-making, which is the work of the parents. Perhaps the bridegroom never ſees the woman till he is joined to her for life. The marriage being propoſed and agreed to, the lady is examined, ſtark-naked, by a certain number of her female relations; and if they find any bodily defect, they endeavour to cure it by their own ſkill and experience. The bride, on her wedding-day, is crowned with a garland of wormwood, implying the bitterneſs that often attends the married ſtate. When the prieſt has tied the nuptial knot at the altar, his clerk or ſexton throws upon her head a handful of hops, wiſhing that ſhe may prove as fruitful as the plant thus ſcattered. She is muffled up, and led home by a certain number of old women, the pariſh-prieſt carrying the croſs before; while one of his ſubalterns, in a rough goat-ſkin, prays all the way that ſhe may bear as many children as there are hairs on his garment. The new-married couple, being ſeated at table, are preſented with bread and ſalt; and a chorus of boys and girls ſing the epithalamium, which is always groſsly obſcene. This ceremony being performed, the bride and bridegroom are conducted to their own chamber by an old woman, who exhorts the wife to obey her huſband, and retires. Then the bridegroom deſires the lady to pull off one of his buſkins, giving her to underſtand, that in one of them is contained a whip, and in the other a jewel or a purſe of money. She takes her choice; and if ſhe finds the purſe, interprets it into a good omen; whereas ſhould ſhe light on the whip, ſhe conſtrues it into an unhappy preſage, and inſtantly receives a laſh as a ſpecimen of what ſhe has to expect. After they have remained two hours together, they are interrupted by a deputation of old women, who come to ſearch for the ſigns of her virginity: if theſe are apparent, the young lady ties up her hair, which before conſummation hung looſe over her ſhoulders, and viſits her mother, of whom ſhe demands the marriage portion. It is generally agreed, that the Muſcovite huſbands are barbarous even to a proverb; they not only adminiſter frequent and ſevere correction to their wives, but ſometimes even torture them to death, without being ſubject to any puniſhment for the murder.

100 Of their marriage.

The canon law of Muſcovy forbids the conjugal commerce on Mondays, Wedneſdays, and Fridays; and whoever tranſgreſſes this law, muſt bathe himſelf before he enters the church-porch. He that marries a ſecond wife, the firſt being alive, is not admitted farther than the church-door; and if any man eſpouſes a third, he is excommunicated: ſo that though bigamy is tolerated, they nevertheleſs count it infamous. If a woman is barren, the huſband generally perſuades her to retire into a convent: if fair means will not ſucceed, he is at liberty to whip her into condeſcenſion. When the czar, or emperor, has an inclination for a wife, the moſt beautiful maidens of the empire are preſented to him for his choice.

The education of the czarovitz, or prince royal, is intruſted to the care of a few perſons, by whom he is ſtrictly kept from the eyes of the vulgar, until he hath attained the 15th year of his age: then he is publicly expoſed in the market-place, that the people, by viewing him attentively, may remember his perſon, in order to aſcertain his identity; for they have more than once been deceived by impoſtors.

101 Authority of parents over their children.

Such is the ſlavery in which the Muſcovites of both ſexes are kept by their parents, their patrons, and the emperor, that they are not allowed to diſpute any match that may be provided for them by theſe directors, however diſagreeable or odious it may be. Officers of the greateſt rank in the army, both natives and foreigners, have been ſaddled with wives by the ſovereign in this arbitrary manner. A great general ſome time ago deceaſed, who was a native of Britain, having been preſſed by the late czarina to wed one of her ladies, ſaved himſelf from a very diſagreeable marriage, by pretending his conſtitution was ſo unſound, that the lady would be irreparably injured by his compliance.

In Ruſſia, the authority of parents over their children is almoſt as great as it was among the ancient Romans, and is often exerciſed with equal ſeverity. Should a father, in puniſhing his ſon for a fault, be the immediate cauſe of his death, he could not be called to account for his conduct; he would have done nothing but what the law authorized him to do. Nor does this legal tyranny ceaſe with the minority of children; it continues while they remain in their father's family, and is often exerted in the moſt indecent manner. It is not uncommon, even in St Peterſburgh, to ſee a lady of the higheſt rank, and in all the pomp and pride of youthful beauty, ſtanding in the court-yard with her back bare, expoſed to the whip of her father's ſervants. And ſo little diſgrace is attached to this puniſhment, that the ſame lady will ſit down at table with her father and his guests immediately after ſhe has ſuffered her flogging, provided its ſeverity has not confined her to bed.

102 Muſic and dancing.

The Muſcovites are fond of the bagpipe, and have a kind of violin, with a large belly like that of a lute: but their muſic is very barbarous and defective. Nevertheleſs, there are public ſchools, in which the children are regularly taught to ſing. The very beggars aſk alms in a whining cadence, and ridiculous ſort of recitative. A Ruſſian ambaſſador at the Hague, having been regaled with the beſt concert of vocal and inſtrumental muſic that could be procured, was aſked how he liked the entertainment? he replied, "Perfectly well: the beggars in my country ſing juſt in the ſame manner." The warlike muſic of the Ruſſians conſiſts in kettle-drums and trumpets: they likewiſe uſe hunting horns; but they are not at all expert in the performance.

formance. It has been said, that the Russians think it beneath them to dance, and that they call in their Polish or Tartarian slaves to divert them with this exercise in their hours of dissipation. Such may have been the case formerly, or may be so now, in the distant and most barbarous provinces of the empire; but at St Petersburgh dancing is at present much relished, and a minuet is nowhere so gracefully performed in Europe as by the fashionable people in that metropolis.

Language. We have elsewhere observed, that the Russian language is a dialect of the sclavonic, and the purest perhaps that is now anywhere to be found (see PHILOLOGY, Sect. ix. § 3.); but they have nothing ancient written in it, except a translation of Chrysostom's Offices for Easter, which are at this day good Russian, and intelligible to every boor, though certainly not less than 800 years old. There is no Russian poetry which there is reason to believe 200 years old; and the oldest translation of the Scriptures into that language is but a late thing, and come to them from Koningsberg. Science has made but a very small progress among them; and the reputation of the imperial academy at St Petersburgh has been hitherto supported by the exertions of foreigners. For antiquarian research they have as little relish as for scientific investigation. Every thing, to please, must be new; and the only elucidations which we have of their antiquities are the performances of Germans and other foreigners, such as professors Bayer, Muller, and Gmelin. One native has indeed shown some desire to recover and preserve what he can of their most ancient poetry; but in his researches, he seems more indebted to an exquisitely nice ear than to any erudition. Erudition indeed they hold in the most sovereign contempt. No gentleman is ever taught Latin or Greek; and were a Russian stranger in company to give any hint of his possessing such knowledge, every man with a sword would draw away his chair, and set him down for a charity-boy. Peter the Great and the present empress have done what sovereigns could do to dispel these clouds of ignorance, by instituting schools and colleges, and giving the masters and professors military rank; but all in vain. One of the most accomplished scholars of the age, after having made himself extremely agreeable to a company of ladies, by means of his taste in music, and a sword at his side, was instantly deserted by them upon some person's whispering through the room that he was a man of learning; and before his fair companions would be reconciled to him, he was obliged to pretend that he was a lieutenant-colonel, totally illiterate.

The two first sentences of Prince Shtcherbatoff's dedication of his History of Russia, which was printed in three volumes 4to, in 1770, afford an admirable specimen of Russian literature. "The history of the human understanding (says this dedicator) assures us, that everywhere the sciences have followed the progress of the prosperity and the strength of kingdoms. When the Grecian arms had overthrown the greatest monarchy then in the world, when they had the famous generals Miltiades, Themistocles, Aristides, Conon, and Alcibiades, at the same time flourished among them Anaximander, Anaxagoras, Archytas, Socrates, and Plato. And when Augustus had conquered the world, and had shut the gates of the temple of Janus, and the proud Romans, under his happy government, cheerfully obeyed his commands, then did Titus Livius, Thucydides, Virgil, and Horace, adorn his court, and celebrate his glory." — A passage so replete as this with blunders and anachronisms it would surely be difficult to find in any other author.

Religion. The Russians were converted to the Christian religion towards the latter end of the tenth century, as has been already related. Since that period they have confessed the articles of the Greek church, mingled with certain superstitious ceremonies of their own. They do not believe in the pope's infallibility or supremacy, or even hold communion with the see of Rome: they use auricular confession, communicate in both kinds, adopt the Athanasian creed, and adhere to the established liturgy of St Basil. They worship the Virgin Mary, and other saints; and pay their adorations to crosses and relics. They observe four great fasts in the year, during which they neither taste fish, flesh, nor any animal production: they will not drink after a man who has eaten flesh, nor use a knife that has cut meat in less than 24 hours after it has been used; nor will they, even though their health is at stake, touch any thing in which leathern or any animal substance has been infused. While this kind of Lent continues, they subsist upon cabbage, cucumbers, and rye-bread, drinking nothing stronger than a sort of small beer called *quassi* †. They likewise fast every Wednesday and Friday. Their common penance is to abstain from every species of food and drink, but bread, salt, cucumbers, and water. They are ordered to bend their bodies, and continue in that painful posture, and between whiles to strike their head against an image.

† See Peasant.

The Muscovites at all times reject as impure, horse-flesh, elk, veal, hare, rabbit, ass's milk, mare's milk, and Venice-treacle, because the flesh of vipers is an ingredient; also every thing that contains even the smallest quantity of musk, civet, and castor: yet they have no aversion to swine's flesh; on the contrary, the country produces excellent bacon. They celebrate 15 grand festivals in the year. On Palm-Sunday there is a magnificent procession, at which the czar assists in person and on foot. He is apparelled in cloth of gold: his train is borne up by the prime of the nobility, and he is attended by his whole court. He is immediately preceded by the officers of his household, one of whom carries his handkerchief on his arm, lying upon another of the richest embroidery. He halts at a sort of platform of free-stone, where, turning to the east, and bending his body almost double, he pronounces a short prayer: then he proceeds to the church of Jerusalem, where he renews his devotion. This exercise being performed, he returns to his palace, the bridle of the patriarch's horse resting upon his arm. The horse's head being covered with white linen, is held by some nobleman; while the patriarch, sitting sideway, and holding a cross in his hand, distributes benedictions as he moves along: on his head he wears a cap edged with ermin, adorned with loops and buttons of gold and precious stones: before him are displayed banners of consecrated stuff, in a variety of colours. Above 500 priests walk in the procession; those who are near the patriarch bearing pictures of the Virgin Mary, richly ornamented with gold, jewels, and pearls, together with crosses, relics, and religious books, including a copy of the Gospels, which they reckon to be of inestimable

eſtimable value. In the midſt of this proceſſion is borne a triumphal arch; and on the top an apple-tree covered with fruit, which ſeveral little boys incloſed in the machine endeavour to gather. The lawyers and laity carry branches of willow; the guards and the ſpectators proſtrate themſelves on the ground while the proceſſion halts; and after the ceremony, the patriarch preſents a purſe of 100 rubles to the czar, who perhaps invites him to dine at his table. During the ſeaſon of Eaſter, the whole empire is filled with mirth and rejoicing: which, however, never fails to degenerate into heat and debauchery; even the ladies may indulge themſelves with ſtrong liquors to intoxication without ſcandal. When a lady ſends to inquire concerning the health of her gueſts whom ſhe entertained over-night, the uſual reply is, "I thank your miſtreſs for her good cheer: by my troth, I was ſo merry that I don't remember how I got home."

During theſe carnivals, a great number of people, in reeling home drunk, fall down and periſh among the ſnow. It is even dangerous to relieve a perſon thus overtaken; for, ſhould he die, the perſon who endeavoured to aſſiſt him is called before the judge, and generally pays dear for his charity.

The Muſcovite prieſts uſe exorciſms at the adminiſtration of baptiſm. They plunge the child three times over head and ears in water, and give it the ſacrament of the Lord's Supper in one ſpecies, until it hath attained the age of ſeven; after which the child is indulged with it in both kinds. They likewiſe adminiſter the ſacrament to dying perſons, together with extreme unction; and if this be neglected, the body is denied Chriſtian burial. Soon as the perſon expires, the body is depoſited in a coffin, with a lunchion of bread, a pair of ſhoes, ſome few pieces of money, and a certificate ſigned by the pariſh-prieſt, and directed to St Nicholas, who is one of their great patrons. They likewiſe hold St Andrew in great veneration, and ridiculouſly pretend they were converted by him to Chriſtianity. But next to St Nicholas, they adore St Anthony of Padua, who is ſuppoſed to have ſailed upon a mill-ſtone through the Mediterranean and Atlantic, and over the lakes Ladoga and Onega, as far as Novogorod. Every houſe is furniſhed with an image of St Nicholas, carved in the moſt rude and fantaſtic manner; and when it becomes old and worm-eaten, the owner either throws it into the river with a few pieces of coin, ſaying, "Adieu, brother;" or returns it to the maker, who accommodates him with a new image for a proper conſideration. The good women are very careful in adorning their private St Nicholaſes with rich clothes and jewels; but on any emergency, theſe are reſumed, and the ſaint left as naked as he came from the hand of the carpenter.

There are monaſteries in Ruſſia; but neither the monks nor the nuns are ſubject to ſevere reſtrictions. The friars are either horſe-jockeys, or trade in hops, wheat, and other commodities; the ſiſters are at liberty to go abroad when they pleaſe, and indulge themſelves in all manner of freedoms.

Heretofore liberty of conſcience was denied, and every convicted heretic was committed to the flames; but ſince the reign of Peter, all religions and ſects are tolerated throughout the empire. Roman Catholics, Lutherans, Calviniſts, Armenians, Jews, and Mahometans, enjoy the free exerciſe of their reſpective forms of worſhip; though it was not without great difficulty, and by dint of extraordinary ſolicitation from different powers, that the Romiſh religion was allowed. Peter knowing the dangerous tenets of a religion that might ſet the ſpiritual power of the pope at variance with the temporal power of the emperor, and being well acquainted with the meddling genius of its profeſſors, held out for ſome time againſt the interceſſion of Germany, France, and Poland; and though at length he yielded to their joint interpoſition, he would by no means ſuffer any Jeſuit to enter his dominions.

The government of Ruſſia is mere deſpotiſm. The whole empire is ruled by the arbitrary will and pleaſure of the ſovereign, who is ſtyled the *czar* or *tzar*, a title which is probably a corruption of Cæſar. Heretofore he was ſtyled *grand duke of Muſcovy*: but ſince the reign of Peter, he is dignified with the appellation of *emperor of Ruſſia*; and the preſent ſovereign is ſtyled *empreſs of all the Ruſſias*. The emperor is abſolute lord, not only of all the eſtates in the empire, but alſo of the lives of his ſubjects: the greateſt noblemen call themſelves his *ſlaves*, and execute his commands with the moſt implicit obedience. The common people revere him as ſomething ſupernatural; they never mention his name, or any thing immediately belonging to him, without marks of the moſt profound reſpect and awful veneration. A man aſking a carpenter at work upon one of the czar's warehouſes, what the place was intended for? anſwered, "None but God and the czar knows."

The nobility of Ruſſia were formerly rich and powerful, and ruled deſpotically over their inferiors: but we have ſeen how the father of Peter the Great contrived to ſtrip them of their privileges, and they are now venal dependants on the court. They ſtill retain the titles of their anceſtors, though many of them are in the moſt abject poverty and contempt.

All the peaſants in the empire are conſidered as immediate ſlaves belonging to the czar, to the boyars, or to the monaſteries. The value of eſtates is computed, not by the extent or quality of the land, but from the number of thoſe peaſants, who may be ſold, alienated, or given away, at the pleaſure of their maſters. The number of theſe huſbandmen, whether living in villages or in the open country, being known, the czar, by requiring a certain proportion of each lord or proprietor, can raiſe 300,000 men in leſs than 40 days.

The adminiſtration is managed by a grand council, called *dumnoy boyaren*, or "council of the boyars," who are the grandees of the empire, and act as privy counſellors. To this are ſubſervient ſix inferior chambers and courts of judicature, provided each with a preſident. The firſt regulates every thing relating to ambaſſadors and foreign negociations; the ſecond takes cognizance of military affairs; the third manages the public revenues of the empire; the buſineſs of the fourth is to encourage, protect, and improve trade and commerce. The two laſt hear and determine in all cauſes, whether civil or criminal.

Peter divided the empire into the eight governments of Moſcow, Archangel, Aſoph, Caſan, Aſtracan, Chioff and the Ukraine, Siberia, Livonia, comprehending Ingria, Pleſcow, and Novogorod, Smolenſko, and Veronitz. The governors or waivodes were veſted with power to diſpoſe of all employments civil and military, and receive the revenues. They were directed to

defray

defray all expences in their respective governments, and send a certain yearly sum to the great treasury. In a word, they enjoyed absolute power in every thing but what related to the regular troops, which, though quartered in their jurisdiction, were neither paid nor directed by them, but received their orders immediately from the czar or his generals.

In 1775 the present empress made a complete new-modelling of the internal government in a form of great simplicity and uniformity. By that reglement she divided the whole empire into 43 governments, as we have already mentioned, placing over each, or where they are of less extent, over two contiguous governments, a governor-general with very considerable powers. She subdivided each government into provinces and districts; and for the better administration of justice erected in them various courts of law, civil, criminal, and commercial, analogous to those which are found in other countries. She established likewise in every government, if not in every province, a tribunal of conscience, and in every district a chamber for the protection of orphans. Amidst so many wise institutions a chamber for the administration of her imperial majesty's revenues was not forgotten to be established in each government, nor a tribunal of police in each district. The duty of the governor-general, who is not properly a judge, but the guardian of the laws, is to take care that the various tribunals in his government discharge their respective duties, to protect the oppressed, to enforce the administration of the laws; and when any tribunal shall appear to have pronounced an irregular sentence, to stop the execution till he make a report to the senate and receive her majesty's orders: It is his business likewise to see that the taxes be regularly paid; and, on the frontiers of the empire, that the proper number of troops be kept up, and that they be attentive to their duty.

This reglement contains other institutions, as well as many directions for the conducting of law-suits in the different courts, and the administration of justice, which do her majesty the highest honour; but the general want of morals, and what we call a sense of honour, in every order of men through this vast empire, must make the wisest regulations of little avail. Russia is perhaps the only nation in Europe where the law is not an incorporated profession. There are no seminaries where a practitioner must be educated. Any man who will pay the fees of office may become an attorney, and any man who can find a client may plead at the bar. The judges are not more learned than the pleaders. They are not fitted for their offices by any kind of education; nor are they necessarily chosen from those who have frequented courts and been in the practice of pleading. A general, from a successful or an equivocal campaign, may be instantly set at the head of a court of justice; and in the absence of the imperial court from St Petersburgh, the commanding officer in that city, whoever he may be, presides *ex officio* in the high court of justice. The other courts generally change their presidents every year. Many inconveniences must arise from this singular constitution; but fewer, perhaps, than we are apt to imagine. The appointment to so many interior governments makes the Russian nobility acquainted with the gross of the ordinary business of law-courts; and a statute or imperial edict is law in every case. The great obstacles to the administration of justice are the contrariety of the laws and the venality of the judges. From inferior to superior courts there are two appeals; and in a great proportion of the causes the reversal of the sentence of the interior court subjects its judges to a heavy fine, unless they can produce an edict in full point in support of their decision. This indeed they seldom find any difficulty to do; for there is hardly a case so simple but that edicts may be found clear and precise for both parties; and therefore the judges, sensible of their safety, are very seldom incorruptible. To the principle of honour, which often guides the conduct of judges in other nations, they are such absolute strangers, that an officer has been seen sitting in state and distributing justice from a bench to which he was chained by an iron collar round his neck, for having the day before been detected in conniving at smuggling. This man seemed not to be ashamed of the crime, nor did any one avoid his company in the evening.

Few crimes are capital in Russia: murder may be atoned by paying a sum of money; nay, the civil magistrate takes no cognizance of murder, without having previously received information at the suit of some individuals. Criminals were punished with torture and the most cruel deaths till the reign of the illustrious Catharine I. when a more merciful system took place, and which the present empress has since confirmed by law. See the articles *Catharine I. of Russia*, and *Elizabeth Petrowna*.

We have already mentioned the traffic of the Russians with the different nations both of Asia and Europe, and specified iron as one of the articles which they export. We may here add, that in 1792 there were in the government of Parma alone, which lies in the northern division of the empire, 88 copper and iron works belonging to the government and private persons, and three gold works. The metals extracted in these works are chiefly conveyed to St Petersburgh by water-carriage on the river Tchusovaya, which falls into the Kama. With respect to the revenue of Russia, it continually fluctuates, according to the increase of commerce or the pleasure of the czar, who has all the wealth of the empire at his disposal. He monopolizes all the best furs, mines, minerals, and the trade by land to the East Indies; he farms out all the tobacco, wine, brandy, beer, mead, and other liquors; the inns, taverns, public houses, bath, and sweating houses. The customs upon merchandize, the imposts upon corn, and toll exacted from cities, towns, and villages, are very considerable. He possesses demesnes to a very great value; inherits the effects of all those that die intestate, or under accusation of capital crimes; derives a duty from all law-suits; and to sum up the whole, can command the fortunes of all his subjects. All these articles produce a large revenue, which was three years ago estimated at upwards of 40,000,000 rubles, or L. 6,333,333 : 6 : 8 Sterling; but then the intrinsic value of money is at least three times greater in Russia than in Britain. The expences in time of peace never exceed 30,000,000 rubles: the remainder is not treasured up, but is employed by her imperial majesty in constructing public edifices, making harbours, canals, roads, and other useful works, for the glory of the empire and the benefit of her subjects.

The standing army of Russia is computed at 25,000 men; besides these, the Russians can assemble a body of

Trade and revenue.

of 40,000 irregulars, Calmucks, Coſſacks, and other Tartars, who live under their dominion. But the number may be doubled on any emergency. The czarina has likewiſe a conſiderable fleet in the Baltic, and a great number of formidable galleys, frigates, fire-ſhips, and bomb-ketches.

RUST, the flower or calx of any metal, procured by corroding and diſſolving its ſuperficial parts by ſome menſtruum. Water is the great inſtrument or agent in producing ruſt: and hence oils, and other fatty bodies, ſecure metals from ruſt; water being no menſtruum for oil, and therefore not able to make its way through it. All metals except gold are liable to ruſt; and even this alſo if expoſed to the fumes of ſea-ſalt. For remedies againſt ruſt, ſee IRON, *par. ult.*

RUSTIC, in architecture, implies a manner of building in imitation of nature, rather than according to the rules of art. See ARCHITECTURE.

Rustic Gods, dii ruſtici, in antiquity, were the gods of the country, or thoſe who preſided over agriculture, &c. Varro invokes the 12 *dii conſentes*, as the principal among the ruſtic gods; viz. Jupiter, Tellus, the Sun, Moon, Ceres, Bacchus, Rubigus, Flora, Minerva, Venus, Lympha, and Good Luck. Beſides theſe 12 arch-ruſtic gods, there were an infinity of leſſer ones; as Pales, Vertumnus, Tutelina, Fulgor, Sterculius, Mellona, Jugatinus, Collinus, Vallonia, Terminus, Sylvanus, and Priapus. Struvius adds the Satyrs, Fauns, Sileni, Nymphs, and even Tritons; and gives the empire over all the ruſtic gods to the god Pan.

Rustic Order, that decorated with ruſtic quoins, ruſtic work, &c.

Rustic Work, is where the ſtones in the face, &c. of a building, inſtead of being ſmooth, are hatched, or picked with the point of a hammer.

RUSTRE, in heraldry, a bearing of a diamond ſhape, pierced through in the middle with a round hole. See HERALDRY.

RUT, in hunting, the venery or copulation of deer.

RUTA, RUE: A genus of the monogynia order, belonging to the decandria claſs of plants; and in the natural method ranking under the 26th order, *Multiſiliquæ*. The calyx is quinquepartite; the petals concave; the receptacle ſurrounded with 10 melliferous pores; the capſule is lobed. In ſome flowers, a fifth part of the number is excluded. There are ſeveral ſpecies; of which the moſt remarkable is the hortenſis, or common broad-leaved garden rue, which has been long cultivated for medicinal uſe. This riſes with a ſhrubby ſtalk to the height of five or ſix feet, ſending out branches on every ſide, garniſhed with decompounded leaves, whoſe ſmall lobes are wedge-ſhaped, of a grey colour, and have a ſtrong odour. The flowers are produced at the end of the branches in bunches almoſt in the form of umbels: they are compoſed of four yellow concave petals which are cut on their edges, and eight yellow ſtamina which are longer than the petals, terminated by roundiſh ſummits. The germen becomes a roundiſh capſule, with four lobes punched full of holes containing rough black ſeeds.

Rue has a ſtrong ungrateful ſmell, and a bitteriſh penetrating taſte: the leaves, when full of vigour, are extremely acid, inſomuch as to inflame and bliſter the ſkin, if much handled. With regard to their medicinal virtues, they are powerfully ſtimulating, attenuating, and detergent; and hence, in cold phlegmatic habits, they quicken the circulation, diſſolve tenacious juices, open obſtructions of the excretory glands, and promote the fluid ſecretions. The writers on the materia medica in general have entertained a very high opinion of the virtues of this plant. Boerhaave is full of its praiſes; particularly of the eſſential oil, and the diſtilled water cohobated or re-diſtilled ſeveral times from freſh parcels of the herb. After extravagantly commending other waters prepared in this manner, he adds, with regard to that of rue, that the greateſt commendations he can beſtow upon it fall ſhort of its merit: "What medicine (ſays he) can be more efficacious for promoting ſweat and perſpiration, for the cure of the hyſteric paſſion and of epilepſies, and for expelling poiſon?" Whatever ſervice rue may be of in the two laſt caſes, it undoubtedly has its uſe in the others: the cohobated water, however, is not the moſt efficacious preparation of it. An extract made by rectified ſpirit contains in a ſmall compaſs the whole virtues of the rue; this menſtruum taking up by infuſion all the pungency and flavour of the plant, and elevating nothing in diſtillation. With water, its peculiar flavour and warmth ariſe; the bitterneſs, and a conſiderable ſhare of the pungency, remaining behind.

Rutabaga, or Swediſh turnip. See HUSBANDRY, p. 761.

BOOK OF RUTH, a canonical book of the Old Teſtament; being a kind of appendix to the book of Judges, and an introduction to thoſe of Samuel; and having its title from the perſon whoſe ſtory is here principally related. In this ſtory are obſervable the ancient rights of kindred and redemption; and the manner of buying the inheritance of the deceaſed, with other particulars of great note and antiquity. The canonicalneſs of this book was never diſputed; but the learned are not agreed about the epocha of the hiſtory it relates. Ruth the Moabiteſs is found in the genealogy of our Saviour. Matth. i. 5.

RUTILUS. See CYPRINUS, n° 6.

RUTHERGLEN, or by contraction RUGLEN, the head borough of the netherward of Lanarkſhire in Scotland, is ſituated in N. Lat. 55° 51′, and W. Long. 4° 13′; about two miles ſouth-eaſt of Glaſgow, and nine weſt of Hamilton. Few towns in Scotland can lay greater claim to antiquity than Rutherglen. Maitland, in his Hiſtory of the Antiquities of Scotland, vol. i. p. 92. tells us, that it was founded by a king Reuther, from whom it derived its name; and a tradition of the ſame import prevails among the inhabitants. But without laying any ſtreſs on the authority of tradition, which is often falſe and always doubtful, we find, from ſeveral original charters ſtill preſerved, that it was erected into a royal borough by king David I. about the year 1126.

The territory under the juriſdiction of the borough was extenſive, and the inhabitants enjoyed many diſtinguiſhed privileges, which were however gradually wreſted from them, by political influence, in favour of Glaſgow, which in latter times roſe into conſequence by trade and manufactures. The ancient dimenſions of the place are now unknown; but in the fields and gardens towards the eaſt the foundations of houſes are occaſionally diſcovered. It is now of a very reduced ſize, conſiſting but of one principal ſtreet and a few lanes, and containing about 1631 inhabitants.

About 150 yards to the ſouth of the main ſtreet

is a kind of lane, known by the name of *Dins dykes*. A circumſtance which befel the unfortunate queen Mary, immediately after her forces were routed at the battle of Langſide, has ever ſince continued to characteriſe this place with an indelible mark of opprobrium. Her majeſty, during the battle, ſtood on a riſing ground about a mile from Rutherglen. She no ſooner ſaw her army defeated than ſhe took her precipitate flight to the ſouth. Dins-dykes unfortunately lay in her way. Two ruſtics, who were at that inſtant cutting graſs hard by, ſeeing her majeſty fleeing in haſte, rudely attempted to intercept her, and threatened to cut her in pieces with their ſcythes if ſhe preſumed to proceed a ſtep further. Neither beauty, nor even royalty itſelf, can at all times ſecure the unfortunate when they have to do with the unfeeling or the revengeful. Relief however was at hand; and her majeſty proceeded in her flight.

Adjoining to a lane called the *Back-row* ſtood the caſtle of Rutherglen, originally built at a period coeval, it is reported, with the foundation of the town. This ancient fortreſs underwent ſeveral ſieges during the unhappy wars in the days of king Robert Bruce, and it remained a place of ſtrength until the battle of Langſide; ſoon after which it was deſtroyed by order of the regent, to revenge himſelf on the Hamilton family, in whoſe cuſtody it then was. The foundations of the buildings are now eraſed, and the ſite converted into dwelling-houſes and gardens.

The kirk of Rutherglen, an ancient building of the Saxon-Gothic ſtyle, was rendered famous by two tranſactions, in which the fate of Sir William Wallace and his country was deeply concerned. In it a truce was concluded between Scotland and England in the year 1297 (Henry's Life of Wallace, Book VI. verſe 862.), and in it Sir John Monteath bargained with the Engliſh to betray Wallace his friend and companion (Life of Wallace, Book XI. verſe 796). This ancient building, having become incommodious, was, in 1794, pulled down, and one of a modern ſtyle was erected in its place. Buried in the area were found vaſt quantities of human bones, and ſome relics of antiquity.

No borough probably in Britain poſſeſſes a political conſtitution or ſett more free and unembarraſſed than Rutherglen. It was anciently under the influence of a ſelf-elected magiſtracy, many of whom lived at a diſtance from the borough, and who continued long in office without interruption. Negligence on the one hand, and an undue exertion of power on the other, at length excited the burgeſſes, about the middle of the laſt century, to apply an effectual remedy to this evil. The community who, at that period, poſſeſſed the power of reforming the abuſes that had long prevailed in the management of the borough, were much aſſiſted in their exertions by a Mr David Spens town-clerk, a gentleman unbiaſſed by falſe politics, and who was animated with a high degree of true patriotiſm. Great oppoſition was at firſt made to the reform; but the plan adopted by the burgeſſes was wiſely laid, and was proſecuted with unremitting aſſiduity. They were proof againſt the influence and bribery of a party that ſtruggled to continue the old practice; and having at length ſurmounted every difficulty, they formed a new conſtitution or ſett for the borough, which, in 1671, was approved of by all the inhabitants of the town, and afterwards inſerted in the records of the general convention of the royal boroughs of Scotland.

Rutherglen, in conjunction with Glaſgow, Renfrew, and Dumbarton, ſends a member to the Britiſh parliament. The fairs of this town are generally well attended, and have long been famous for a great ſhow of horſes, of the Lanarkſhire breed, which are eſteemed the beſt draught-horſes in Britain. The inhabitants of this borough ſtill retain ſome cuſtoms of a very remote antiquity. One of theſe is the making of *Rutherglen four cakes*. The operation is attended with ſome peculiar rites, which lead us to conclude that the practice is of Pagan origin. An account of theſe rites is given in Ure's Hiſtory of Rutherglen and Kilbride, p. 94.; from whence we have taken the above account of this place, and which we do not heſitate to recommend to the attention of ſuch of our readers as are fond of natural and local hiſtory, being perſuaded that they will find it to be both an uſeful and entertaining performance.

RUTLANDSHIRE, is the leaſt county in England, it being but 40 miles in circumference; in which are two towns, 48 pariſhes, and 3263 houſes. However, for quality it may be compared with any other county; the air being good, and the ſoil fertile both for tillage and paſtures; and it not only affords plenty of corn, but feeds a great number of horned cattle and ſheep. It is well watered with brooks and rivulets; and the principal rivers are the Weland and the Waſh. It is bounded on the eaſt by Lincolnſhire; on the ſouth by the river Weland, which parts it from Northamptonſhire; and on the weſt and north by Leiceſterſhire. It has only two market-towns; namely, Okeham, where the aſſizes and ſeſſions are held, and Uppingham.

RUYSCH (Frederic), one of the moſt eminent anatomiſts of which Holland can boaſt, was born at the Hague in 1638. After making great progreſs at home, he repaired to Leyden, and there proſecuted the ſtudy of anatomy and botany. He ſtudied next at Francker, where he obtained the degree of doctor of phyſic. He then returned to the Hague; and marrying in 1661, dedicated his whole time to the ſtudy of his profeſſion. In 1665 he publiſhed a treatiſe, entitled *Dimidatio valvularum de variis lymphaticis et lacteis*; which raiſed his reputation ſo high, that he was choſen profeſſor of anatomy at Amſterdam. This honour he accepted with the more pleaſure, becauſe his ſituation at Amſterdam would give him eaſy acceſs to every requiſite help for cultivating anatomy and natural hiſtory. After he ſettled in Amſterdam, he was perpetually engaged in diſſecting and in examining with the moſt inquiſitive eye the various parts of the human body. He improved the ſcience of anatomy by new diſcoveries; in particular, he found out a way to preſerve dead bodies many years from putrefaction. His anatomical collection was curious and valuable. He had a ſeries of fœtuſes of all ſizes, from the length of the little finger to that of a new born infant. He had alſo bodies of full grown perſons of all ages, and a vaſt number of animals almoſt of every ſpecies on the globe, beſides a great many other natural curioſities. Peter the Great of Ruſſia, in his tour through Holland in the year 1698, viſited Ruyſch, and was ſo charmed with his converſation, that he

Ruyſch, Ruyter.

paſſed whole days with him; and when the hour of departure came, he left him with regret. He ſet ſo high a value on Ruyſch's cabinet of curioſities, that when he returned to Holland in 1717, he purchaſed it for 30,000 florins, and ſent it to Peterſburgh.

In 1685 he was made profeſſor of medicine, an office which he diſcharged with great ability. In 1728 he got his thigh-bone broken by a fall in his chamber. The year before this misfortune happened he had been deprived of his ſon Henry, a youth of talents, and well ſkilled in anatomy and botany. He had been created a doctor of phyſic, and was ſuppoſed to have aſſiſted his father in his diſcoveries and publications. Ruyſch's family now conſiſted only of his youngeſt daughter. This lady had been early inſpired with a paſſion for anatomy, the favourite ſcience of her father and brother, and had ſtudied it with ſucceſs. She was therefore well qualified to aſſiſt her father in forming a ſecond collection of curioſities in natural hiſtory and anatomy, which he began to make after the emperor of Ruſſia had purchaſed the firſt. Ruyſch is ſaid to have been of ſo healthy a conſtitution, that though he lived to the age of 93, yet during that long period he did not labour under the infirmities of diſeaſe above a month. From the time he broke his thigh he was indeed diſabled from walking without a ſupport; yet he retained his vigour both of mind and body without any ſenſible alteration, till in 1731 his ſtrength at once deſerted him. He died on the 22d of February the ſame year. His anatomical works are printed in 4 vols 4to.

The ſtyle of his writings is ſimple and conciſe, but ſometimes inaccurate. Inſtruction, and not oſtentation, ſeems to be his only aim. In anatomy he undoubtedly made many diſcoveries; but from not being ſufficiently converſant in the writings of other anatomiſts, he publiſhed as diſcoveries what had been known before. The academy of ſciences at Paris in 1727 elected him a member in place of Sir Iſaac Newton, who was lately deceaſed. He was alſo a member of the Royal Society of London.

RUYTER (Michael Adrian), a diſtinguiſhed naval officer, was born at Fleſſingue, a town of Zealand, in 1607. He entered on a ſea-faring life when he was only 11 years old, and was firſt a cabin-boy. While he advanced ſucceſſively to the rank of mate, maſter, and captain, he acquitted himſelf with ability and honour in all theſe employments. He repulſed the Iriſh, who attempted to take Dublin out of the hands of the Engliſh. He made eight voyages to the Weſt Indies and ten to Brazil. He was then promoted to the rank of rear-admiral, and ſent to aſſiſt the Portugueſe againſt the Spaniards. When the enemy came in ſight, he advanced boldly to meet them, and gave ſuch unqueſtionable proofs of valour as drew from the Portugueſe monarch the warmeſt applauſe. His gallantry was ſtill more conſpicuous before Salee, a town of Barbary. With one ſingle veſſel he ſailed through the roads of that place in defiance of five Algerine Corſairs who came to attack him.

In 1653 a ſquadron of ſeventy veſſels was diſpatched againſt the Engliſh under the command of Van Tromp. Ruyter, who accompanied the admiral in this expedition, ſeconded him with great ſkill and bravery in the three battles which the Engliſh ſo glorioſuſly won. He was afterwards ſtationed in the Mediterranean, where he captured ſeveral Turkiſh veſſels. In 1659 he received a commiſſion to join the king of Denmark in his war with the Swedes; and he not only maintained his former reputation, but even raiſed it higher. As the reward of his ſervices, the king of Denmark ennobled him and gave him a penſion. In 1661 he run aſhore a veſſel belonging to Tunis, releaſed 40 Chriſtian ſlaves, made a treaty with the Tuniſians, and reduced the Algerine corſairs to ſubmiſſion. His country, as a teſtimony of her gratitude for ſuch illuſtrious ſervices, raiſed him to the rank of vice-admiral and commander in chief. To the latter dignity, the higheſt that could be conferred upon him, he was well intitled by the ſignal victory which he obtained over the combined fleets of France and Spain. This battle was fought in 1672 about the time of the conqueſt of Holland. The fight was maintained between the Engliſh and Dutch with the obſtinate bravery of nations which were accuſtomed to diſpute the empire of the main. Ruyter having thus made himſelf maſter of the ſea, conducted a fleet of Indiamen ſafely into the Texel; thus defending and enriching his country, while it was become the prey of hoſtile invaders. The next year he had three engagements with the fleets of France and England, in which, if poſſible, his bravery was ſtill more diſtinguiſhed than ever. D'Eſtrees the French vice-admiral wrote to Colbert in theſe words: "I would purchaſe with my life the glory of De Ruyter." But he did not long enjoy the triumphs which he had ſo honourably won. In an engagement with the French fleet off the coaſt of Sicily, he loſt the day, and received a mortal wound, which put an end to his life in a few days. His corpſe was carried to Amſterdam, and a magnificent monument was there erected by the command of the ſtates-general. The Spaniſh council beſtowed on him the title of duke, and tranſmitted a patent inveſting him with that dignity; but he died before it arrived.

When ſome perſon was congratulating Louis XIV. upon De Ruyter's death, telling him he had now got rid of one dangerous enemy; he replied, "Every one muſt be ſorry at the death of ſo great a man."

RYE, in botany. See SECALE.

Rye-Graſs. See AGRICULTURE, nº 179.

RYE, a town in Suſſex, with two markets on Wedneſdays and Saturdays, but no fair. It is one of the cinque-ports; is a handſome well-built place, governed by a mayor and jurats, and ſends two members to parliament. It has a church built with ſtone, and a town-hall; and conſiſts of three ſtreets, paved with ſtone. One ſide of the town has been walled in, and the other is guarded by the ſea. It has two gates, and is a place of conſiderable trade in the ſhipping way. From thence large quantities of corn are exported, and many of the inhabitants are fiſhermen. It is 34 miles ſouth-eaſt by ſouth of Tunbridge, and 64 on the ſame point from London. The mouth of the harbour is of late choaked up with ſand; but if well opened, it would be a good ſtation for privateers that cruize againſt the French. E. Long. 0. 50. N. Lat. 51. 0.

RYMER (Thomas), Eſq; the author of the *Fœdera*, was born in the north of England, and educated at the grammar-ſchool of Northallerton. He was admitted a ſcholar at Cambridge, then became a member of Gray's Inn, and at length was appointed hiſtoriographer to King William in place of Mr Shadwell. He wrote A View

View of the Tragedies of the last Age, and afterwards published a tragedy named *Edgar*. For a critic he was certainly not well qualified, for he wanted candour; nor is his judgment much to be relied on, who could condemn Shakespeare with such rigid severity. His tragedy will show, that his talents for poetry were by no means equal to those whose poems he has publicly censured. But though he has no title to the appellation of *poet* or *critic*, as an antiquarian and historian his memory will long be preserved. His *Fœdera*, which is a collection of all the public transactions, treaties, &c. of the kings of England with foreign princes, is esteemed one of our most authentic and valuable records, and is oftener referred to by the best English historians than perhaps any other book in the language. It was published at London in the beginning of the present century in 17 volumes folio. Three volumes more were added by Sanderson after Rymer's death. The whole were reprinted at the Hague in 10 vols in 1739. They were abridged by Rapin in French, and inserted in Le Clerc's *Bibliotheque*, a translation of which was made by Stephen Whatley, and printed in 4 vols 8vo, 1731.

Rymer died 14th December 1713, and was buried in the parish church of St Clement's Danes. Some specimens of his poetry are preserved in the first volume of Mr Nichol's Select Collection of Miscellaneous Poems, 1780.

RYNCHOPS, in ornithology, a genus belonging to the order of anseres. The bill is straight; and the superior mandible much shorter than the inferior, which is truncated at the point. The species are two, viz. the nigra and fulva, both natives of America.

RYOTS, in the policy of Hindostan, the modern name by which the renters of land are distinguished. They hold their possessions by a lease, which may be considered as perpetual, and at a rate fixed by ancient surveys and valuations. This arrangement has been so long established, and accords so well with the ideas of the natives, concerning the distinction of casts, and the functions allotted to each, that it has been invariably maintained in all the provinces subject either to Mahometans or Europeans; and to both it serves as the basis on which their whole system of finance is founded.

Respecting the precise mode, however, in which the ryots of Hindostan held their possessions, there is much diversity of opinion; the chief of which are very impartially delineated in note iv. to the Appendix of Robertson's Historical Disquisition, &c. concerning India, p. 345. to which we refer such of our readers as are interested in this subject of finance.

RYSCHIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking with those that are doubtful. The calyx is pentaphyllous; the corolla is pentapetalous; and the apices turned back, about three times the length of the calyx; the filaments are five, awl-shaped, and shorter than the petals. The seed-vessel is quadrilocular, and contains many seeds. Of this there are two species, viz. the *Clausifolia* and *Souroubea*.

RYSWICK, a large village in Holland, seated between the Hague and Delft, where the prince of Orange has a palace, which stands about a quarter of a mile farther. It is a very noble structure, all of hewn stone, of great extent in front, but perhaps not proportionably high. It is adorned with a marble stair-case, marble floors, and a magnificent terrace. There is a good prospect of it from the canal between Delft and the Hague. This place is remarkable for a treaty concluded here in 1697 between England, Germany, Holland, France, and Spain. E. Long. 4. 20. N. Lat. 52. 8.

S.

S s, or s, the 18th letter and 14th consonant of our alphabet; the sound of which is formed by driving the breath through a narrow passage between the palate and the tongue elevated near it, together with a motion of the lower jaw and teeth towards the upper, the lips being a little way open; with such a configuration of every part of the mouth and larynx, as renders the voice somewhat sibilous and hissing. Its sound, however, varies; being strong in some words, as *this*, *thus*, &c. and soft in words which have a final *e*, as *muse*, *wise*, &c. It is generally doubled at the end of words, whereby they become hard and harsh, as in *kiss*, *loss*, &c. In some words it is silent, as *isle*, *island*, *viscount*, &c. In writing or printing, the long character *ſ* is generally used at the beginning and middle of words, but the short *s* at the end.

In abbreviations, S stands for *societas* or *socius*; as, R. S. S. for *regiæ societatis socius*, i. e. fellow of the royal society. In medicinal prescriptions, S. A. signifies *secundum artem*, i. e. according to the rules of art: And in the notes of the ancients, S stands for *Sextus*; S. P. for *Spurius*; S. C. for *senatus consultum*; S. P. Q. R. for *senatus populusque Romanus*; S. S. S for *stratum super stratum*, i. e. one layer above another alternately; S. V. B. E. E. Q. V. for *si vales bene est, ego quoque valeo*, a form used in Cicero's time, in the beginning of letters. Used as a numeral, S anciently denoted seven; in the Italian music, S signifies *solo*: And in books of navigation, S. stands for south; S. E. for south-east; S. W. for south-west; S. S. E. for south south-east; S. S. W. for south south-west &c.

SAAVEDRA (Michael de Cervantes), a celebrated Spanish writer, and the inimitable author of Don Quixote, was born at Madrid in the year 1549. From his

Saavedra.

his infancy he was fond of books; but he applied himself wholly to books of entertainment, such as novels and poetry of all kinds, especially Spanish and Italian authors. From Spain he went to Italy, either to serve Cardinal Aquaviva, to whom he was chamberlain at Rome; or else to follow the profession of a soldier, as he did some years under the victorious banners of Marco Antonio Colonna. He was present at the battle of Lepanto, fought in the year 1571; in which he either lost his left hand by the shot of an harquebus, or had it so maimed that he lost the use of it. After this he was taken by the Moors, and carried to Algiers, where he continued a captive five years and a half. Then he returned to Spain, and applied himself to the writing of comedies and tragedies; and he composed several, all of which were well received by the public, and acted with great applause. In the year 1584 he published his Galatea, a novel in six books; which he presented to Ascanio Colonna, a man of high rank in the church, as the first fruits of his wit. But the work which has done him the greatest honour, and will immortalize his name, is the history of Don Quixote; the first part of which was printed at Madrid in the year 1605. This is a satire upon books of knight-errantry; and the principal, if not the sole, end of it was to destroy the reputation of these books, which had so infatuated the greater part of mankind, especially those of the Spanish nation. This work was universally read; and the most eminent painters, tapestry-workers, engravers, and sculptors, have been employed in representing the history of Don Quixote. Cervantes, even in his lifetime, obtained the glory of having his work receive a royal approbation. As King Philip III. was standing in a balcony of his palace at Madrid, and viewing the country, he observed a student on the banks of the river Manzanares reading in a book, and from time to time breaking off and beating his forehead with extraordinary tokens of pleasure and delight: upon which the king said to those about him, "That scholar is either mad, or reading Don Quixote:" the latter of which proved to be the case. But *virtus laudatur et alget:* notwithstanding the vast applause his book everywhere met with, he had not interest enough to procure a small pension, but had much ado to keep himself from starving. In the year 1615, he published a second part; to which he was partly moved by the presumption of some scribbler, who had published a continuation of this work the year before. He wrote also several novels; and among the rest, "The Troubles of Persiles and Sigismunda." He had employed many years in writing this novel, and finished it but just before his death; for he did not live to see it published. His sickness was of such a nature, that he himself was able to be, and actually was, his own historian. At the end of the preface to the Troubles of Persiles and Sigismunda, he represents himself on horseback upon the road, and a student, who had overtaken him, engaged in conversation with him: "And happening to talk of my illness (says he), the student soon let me know my doom, by saying it was a dropsy I had got; the thirst attending which all the water of the ocean, though it were not salt, would not suffice to quench. Therefore Senor Cervantes, says he, you must drink nothing at all, but do not forget to eat; for this alone will recover you without any other physic. I have been told the same by others, answered I; but I can no more forbear tippling, than if I were born to do nothing else. My life is drawing to an end; and from the daily journal of my pulse, I shall have finished my course by next Sunday at the farthest.—But adieu, my merry friends all, for I am going to die; and I hope to see you ere long in the other world, as happy as heart can wish." His dropsy increased, and at last proved fatal to him; yet he continued to say and to write bon mots. He received the last sacrament on the 18th of April 1616; yet the day after wrote a Dedication of the Troubles of Persiles and Sigismunda to the Condé de Lemos. The particular day of his death is not known.

Saba || Sabbatarians.

SABA, a Dutch island near St Eustatia in the West Indies. It is a steep rock, on the summit of which is a little ground, very proper for gardening. Frequent rains, which do not lie any time on the soil, give growth to plants of an exquisite flavour, and cabbages of an extraordinary size. Fifty European families, with about one hundred and fifty slaves, here raise cotton, spin it, make stockings of it, and sell them to other colonies for as much as ten crowns* a pair. Throughout America there is no blood so pure as that of Saba; the women there preserve a freshness of complexion, which is not to be found in any other of the Caribbee islands. Happy colony! elevated on the top of a rock between the sky and sea, it enjoys the benefit of both elements without dreading their storms; it breathes a pure air, lives upon vegetables, cultivates a simple commodity, from which it derives ease without the temptation of riches: is employed in labours less troublesome than useful, and possesses in peace all the blessings of moderation, health, beauty, and liberty. This is the temple of peace from whence the philosopher may contemplate at leisure the errors and passions of men, who come, like the waves of the sea, to strike and dash themselves on the rich coasts of America, the spoils and possession of which they are perpetually contending for, and wresting from each other: hence may he view at a distance the nations of Europe bearing thunder in the midst of the ocean, and burning with the flames of ambition and avarice under the heats of the tropics; devouring gold without ever being satisfied; wading through seas of blood to amass those metals, those pearls, those diamonds, which are used to adorn the oppressors of mankind; loading innumerable ships with those precious casks, which furnish luxury with purple, and from which flow pleasures, effeminacy, cruelty, and debauchery. The tranquil inhabitant of Saba views this mass of follies, and spins his cotton in peace.

*Raynal's History, vol. iv.

*L. 1 : 5 :

SABÆANS. See SABIANS.

SABAZIA, in Greek antiquity, were nocturnal mysteries in honour of Jupiter Sabazius. All the initiated had a golden serpent put in at their breasts, and taken out at the lower part of their garments, in memory of Jupiter's ravishing Proserpina in the form of a serpent. There were also other feasts and sacrifices distinguished by this appellation, in honour of Mithras, the deity of the Persians, and of Bacchus, who was thus denominated by the Sabians, a people of Thrace.

SABBATARIANS, or SEVENTH DAY BAPTISTS, a sect of anabaptists; thus called, because they observed the Jewish or Saturday-Sabbath, from a persuasion that it was never abrogated in the New Testament by the institution of any other.

SABBATH,

Sabbath. Definition.

SABBATH, in the Hebrew language, ſignifies *reſt*. The ſeventh day was denominated the *Sabbath*, or *day of reſt*, becauſe that in it God had reſted from all his works which he created and made. From that time the ſeventh day ſeems to have been ſet apart for religious ſervices; and, in conſequence of a particular injunction, was afterwards obſerved by the Hebrews as an holyday. They were commanded to ſet it apart for ſacred purpoſes in honour of the creation, and likewiſe in memorial of their own redemption from Egyptian bondage.

2 Importance of the inſtitution and of ſy ceremonies.

The importance of the inſtitution may be gathered from the different laws reſpecting it. When the ten commandments were publiſhed from Mount Sinai in tremendous pomp, the law of the Sabbath held a place in what is commonly called the firſt table, and by ſubſequent ſtatutes the violation of it was to be puniſhed with death. Six days were allowed for the uſe and ſervice of man; but the ſeventh day God reſerved to himſelf, and appointed it to be obſerved as a ſtated time for holy offices, and to be ſpent in the duties of piety and devotion. On this day the miniſters of the temple entered upon their week; and thoſe who had attended on the temple ſervice the preceding week went out at the ſame time. New loaves of ſhew-bread were placed upon the golden table, and the old ones taken away. Two lambs for a burnt-offering, with a certain proportion of fine flour, mingled with oil, for a bread-offering, and wine for a libation, were offered. The Sabbath, as all other feſtivals, was celebrated from evening to evening. It began at ſix in the evening on Friday, and ended at the ſame time the next day.

3 Time of its inſtitution.

Concerning the time at which the Sabbath was firſt inſtituted, different opinions have been held. Some have maintained, that the ſanctification of the ſeventh day, mentioned in Gen. ii. is only there ſpoken of διὰ προλήψιν or by anticipation; and is to be underſtood of the Sabbath afterwards injoined the children of Iſrael at the commencement of the Moſaic diſpenſation. But without entering into a particular examination of all the arguments adduced to ſupport this opinion, a few obſervations, it is preſumed, will be ſufficient to ſhow that it reſts on no ſolid foundation.

It cannot eaſily be ſuppoſed that the inſpired penman would have mentioned the ſanctification of the ſeventh day amongſt the primeval tranſactions, if ſuch ſanctification had not taken place until 2500 years afterwards. Writers, ambitious of that artificial elegance which the rules of criticiſm have eſtabliſhed, often bring together in their narratives events which were themſelves far diſtant, for the ſake of giving form to their diſcourſe; but Moſes appears to have deſpiſed all ſuch flimſy refinements, and to have conſtructed his narrative in great conformity to the ſeries of events.

4 Religious ſervice in the patriarchal age.

From the accounts we have of the religious ſervice practiſed in the patriarchal age, it appears that, immediately after the fall, when Adam was reſtored to favour through a Mediator, a ſtated form of public worſhip was inſtituted, which man was required to obſerve in teſtimony, not only of his dependence on the Creator, but alſo of his *faith* and *hope* in the promiſe made to our firſt parents, and ſeen afar of. Of an inſtitution then ſo grand and important, no circumſtance would be omitted that is neceſſary to preſerve it, or that contributes to render the obſervance of it regular and ſolemn.

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5 Neceſſity of ſtated times for the performance.

That determined times are neceſſary for the due celebration of divine ſervice, cannot be denied. Such is the conſtitution of man, that he muſt have particular times ſet apart for particular ſervices. He is doomed to toil and labour; to earn his bread in the ſweat of his face; and is capable of performing religious duties only in ſuch a manner as is conſiſtent with his ſituation in the world. If ſtated times for religious ſolemnities had not been enjoined, the conſequence would have been, that ſuch ſolemnities would have been altogether neglected; for experience ſhows, that if mankind were left at liberty when and how often they ſhould perform religious offices, theſe offices would not be performed at all. It is the obſervation of holy times that preſerves the practice of holy ſervices; and without the frequent and regular returns of hallowed days, man would quickly forget the duty which he owes to God, and in a ſhort time no veſtige of religion would be found in the world.

6 Objections to the early inſtitution of the Sabbath conſidered.

Among the ordinances which God vouchſafed his ancient people, we find that the pious obſervation of holydays was particularly inſiſted upon; and the Sabbath was enjoined to be kept holy, in the moſt ſolemn manner, and under the ſevereſt penalties. Can it then be ſuppoſed that He would ſuffer mankind, from the creation of the world to the Moſaic era, to remain without an inſtitution ſo expedient in itſelf, and as well fitted to anſwer the end propoſed by it, under the one diſpenſation, as ever it could be under the other? No; we have every imaginable reaſon to conclude, that when religious ſervices were enjoined, religious times were appointed alſo; for the one neceſſarily implies the other.

It is no objection to the early inſtitution of the Sabbath, that there is no mention of it in the hiſtory of the patriarchal age. It would have ſwelled the Bible to a moſt enormous ſize, had the ſacred hiſtorian given a particular account of all the tranſactions of thoſe times; beſides, it would have anſwered no end. When Moſes wrote the book of Geneſis, it was unneceſſary to relate minutely tranſactions and inſtitutions already well known by tradition: accordingly we ſee, that his narrative is everywhere very conciſe, and calculated only to preſerve the memory of the moſt important facts. However, if we take a view of the church-ſervice of the patriarchal age, we ſhall find that what is called the *legal* diſpenſation, at leaſt the liturgic part of it, was no new ſyſtem, but a collection of inſtitutions obſerved from the beginning, and republiſhed in form by Moſes. The Scriptures inform us that Cain and Abel offered ſacrifices; and the account which is given of the acceptance of the one, and the rejection of the other, evidently ſhows that ſtated laws reſpecting the ſervice had then taken place. "In proceſs of time," *at the end of the days*. "Abel brought an offering." Here was *prieſt*, *altar*, *matter of ſacrifice*, *appointed time*, *motive to ſacrifice*, *atonement made*, and *accepted*. The diſtinction of animals into clean and unclean before the flood, and Noah's ſacrifice immediately after his deliverance, without any new direction, is an unanſwerable proof of the ſame truth. It is teſtified of Abraham, by God himſelf, that he kept his *charge*, his *commandments*, his *ſtatutes*, and his *laws*. Theſe expreſſions comprehend the various branches, into which the law given at Sinai was divided. They contain the moral precepts, affirmative and negative, the matter of religious ſervice, a body of laws

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laws to direct obedience, and to which man was to conform his conduct in every part of duty. Agreeably to this, we find that sacrifices were offered, altars and places of worship consecrated, and the *Sabbath* also mentioned as a well known solemnity, before the promulgation of the law. It is expresly taken notice of at the fall of manna; and the incidental manner in which it is then mentioned, is a convincing proof that the Israelites were no strangers to the institution: for had it been a *new* one, it must have been enjoined in a positive and particular manner, and the nature of it must have been laid open and explained, otherwise the term would have conveyed no meaning.

7 Argument from the general division of time into weeks.

The division of time into *weeks*, or periods of seven days, which obtained so early and almost universally, is a strong indication that *one* day in seven was always distinguished in a particular manner. *Week**, and *seven days*, are in scripture language synonymous terms. God commanded Noah, *seven days* before he entered the ark, to introduce into it all sorts of living creatures. When the waters of the flood began to abate, Noah sent forth a dove, which, finding no rest for the sole of her foot, returned to him. After *seven days* he sent forth the dove a second time, and again she returned to the ark. At the expiration of other *seven days* he let go the dove a third time: and a *week* is spoken of (Gen. xxix.) as a well known space of time.

* שבע *Seven.*

This septenary division of time has been, from the earliest ages, uniformly observed over all the eastern world. The Israelites, Assyrians, Egyptians, Indians, Arabians, and Persians, have always made use of a week, consisting of seven days. Many vain attempts have been made to account for this uniformity; but a practice so general and prevalent could never have taken place, had not the septenary distribution of time been instituted from the beginning, and handed down by tradition.

From the same source also must the ancient heathens have derived their notions of the sacredness of the seventh day. That they had such notions of it is evident from several passages of the Greek poets quoted by Aristobulus, a learned Jew, by Clement of Alexandria, and Eusebius.

———— ἑβδόμη, ἱερὸν ἦμαρ. Hesiod.
The seventh, the *sacred* day.

ἑβδόμαται δ' ἔπειτα κατηλύθομεν ἱερὸν ἦμαρ. Homer.
Afterwards came the seventh, the *sacred* day.

Again:

ἑβδόμῃ ἦμαρ ἐνὶ, καὶ τῷ τετέλεσται πάντα.
On the *seventh* day all things were *completed*.

ἑβδόμαται δὴ τετέλεσται πάντ' τετύκται. Linus.
All things were made *perfect* on the *seventh* day.

That they likewise held the number *seven* in high estimation has been shown by a learned, though sometimes fanciful, author*, with such evidence as to enforce conviction. The Pythagoreans call it the *venerable* number, σεβασμιωτάτη, *worthy of veneration*, and held it to be *perfect* and *most proper* to religion. They denominated it *fortune*, and also styled it *voice*, *sound*, *muse*, because, no doubt, *seven* distinct notes comprehend the whole scale of music, beyond which neither voice nor instrument can go, but must return from the seventh, and begin again anew. They likewise designed it τελεσφόρος, *leading to the end.*

* Holloway's Originals, vol. ii. p. 60.

Seven, in the Hebrew language, is expressed by a word that primarily signifies *fulness*, *completion*, *sufficiency*, and is applied to a *week*, or *seven days*, because that was the *full* time employed in the work of creation; to the *Sabbath*, because on it all things were *completed*; and to an *oath*, because it is *sufficient* to put an end to all strife. This opening of the Hebrew root will enable us to come at the meaning of those expressions of the heathens, and also let us see whence they derived their ideas and modes of speaking, and that the knowledge of the transactions at the creation, though much perverted, was never entirely lost by them.

It has been supposed by some, that the heathens borrowed the notion of the *sacredness* of the seventh day from the Jews. But this opinion will not readily be admitted, when it is considered that the Jews were held in the greatest contempt by the surrounding nations, who derided them no less for their sabbaths than for their circumcision. All sorts of writers ridiculed them on this account. Seneca charged them with spending the seventh part of their time in sloth. Tacitus said, that not only the seventh day, but also the seventh year, was unprofitably wasted. Juvenal brings forward the same charge; and Persius upbraided them with their *recutita sabbata*. Plutarch said that they kept it in honour of Bacchus. Tacitus affirmed, that it was in honour of Saturn; but the most abominable assertion of all is that of Apion, who said that they observed the Sabbath in memory of their being cured on that day of a shameful disease, called by the Egyptians *sabbo*.

Some perceiving the force of this objection have contended, that time was divided into weeks of seven days, that each of the planetary gods, the Sun, Moon, Mercury, Venus, Mars, Jupiter, and Saturn, who were the *Dii majorum gentium*, might have a day appropriated to his service. But if such was the origin of weeks, how came the great and ancient goddess *Tellus* to be omitted? She was worshipped by the early idolaters as well as the other planets, and must surely have been deemed by them as worthy of a particular day set apart to her honour as the planet Saturn, who was long undiscovered, afterwards seen but occasionally, and at all times considered as of malign aspect. (See REMPHAN.)

Others have supposed, that as the year was divided into lunar months of something more than 28 days, it was natural to divide the month into quarters from the different phases of the moon, which would produce as many weeks of seven days. But this supposition is less tenable than the former. The phases of the moon are not so precisely marked at the quarters as to attract to them any particular notice, nor are the quarterly appearances of one month commonly like those of another. We cannot, therefore, conceive what should have induced the earliest observers of the phases of the moon to divide the month into four parts rather than into three, or five, or seven. Had the ancient week consisted of 14 days, it might have been inferred, with some degree of plausibility, that its length was regulated by the phases of the moon, because the shape of that luminary, at the end of the second quarter, is very precisely marked; but there is nothing which, in the present hypothesis, could have everywhere led mankind to make their weeks consist of seven days. This division of time, therefore, can be accounted for only by admitting the primeval institution

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ſtitution of the Sabbath, as related by Moſes in the book of Geneſis. That inſtitution was abſolutely neceſſary to preſerve among men a ſenſe of religion; and it was renewed to the Jews at the giving of the law, and its obſervance enforced by the ſevereſt penalties. It was accordingly obſerved by them with more or leſs ſtricteſs in every period of their commonwealth, and there is none of the inſtitutions of their divine lawgiver which, in their preſent ſtate of diſperſion, they more highly honour. They regard it, indeed, with a ſuperſtitious reverence, call it their *ſpouſe*, their *delight*, and ſpeak of it in the moſt magnificent terms. They have often varied in their opinions of the manner in which it ought to be kept. In the time of the Maccabees, they carried their reſpect for the ſabbath ſo very high, that they would not on that day defend themſelves from the attacks of their enemies. But afterwards they did not ſcruple to ſtand upon their neceſſary defence, although they would do nothing to prevent the enemy from carrying on their operations. When our Saviour was on earth, it was no ſin to looſe a beaſt from the ſtall, and lead him to water; and if he had chanced to fall into a ditch, they pulled him out: but now it is abſolutely unlawful to give a creature in that ſituation any other aſſiſtance than that of food; and if they lead an animal to water, they muſt take care not to let the bridle or halter hang looſe, otherwiſe they are tranſgreſſors.

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As the law enjoins reſt on that day from all ſervile employments, in order to comply with the injunction, they undertake no kind of work on Friday but ſuch as can eaſily be accompliſhed before evening. In the afternoon they put into proper places the meat that they have prepared to eat the day following. They afterwards ſet out a table covered with a clean cloth, and place bread upon it, which they alſo cover with another cloth: and during the ſabbath the table is never moved out of its place. About an hour before ſunſet, the women light the ſabbath lamps, which hang in the places where they eat. They then ſtretch forth their hands to the light, and pronounce the following benediction. "Bleſſed be thou, O God, king of the world, who haſt enjoined us, that are ſanctified by thy commandments, to light the ſabbath lamp." Theſe lamps are two or more in number, according to the ſize of the chamber in which they are ſuſpended, and continue to burn during the greateſt part of the night. In order to begin the ſabbath well, they waſh their hands and faces, trim their hair, and pare their nails, beginning at the fourth finger, then going to the ſecond, then the fifth, then the third, and ending with the thumb. If a Jew caſts the parings of his nails to the ground, he is *raſcah*, that is, a *wicked* man; for Satan has great power over thoſe parings of nails; and it ſeems they are of great uſe to the wizzards, who know how to employ them in their enchantments. If he buries them in the earth, he is *tzedic*, that is, a *juſt* man: if he burns them in the fire, he is *cheſid*, that is, worthy of honour, an holy man. When they have performed theſe preparatory ceremonies, they repair to the ſynagogue, and enter upon their devotions. As ſoon as prayers begin, the departed ſouls ſpring out of the purgatorial flames, and have liberty to cool themſelves in water while the ſabbath laſts; for which reaſon the Jews prolong the continuance of it as much as they can; and the Rabbins have ſtrictly commanded them not to exhauſt all the water on the ſabbath day, left thoſe miſerable ſouls ſhould by that means be deprived of the refreſhing element. When they have ended their prayers, they return home, and ſalute one another, by wiſhing a good ſabbath. They then ſit down to table. The maſter of the family takes a cup full of wine, and lifting up his hand, ſays, "Bleſſed be thou, O God our Lord, king of the world, who haſt created the fruit of the vine.—Bleſſed be thou, O God our Lord, king of the world, who haſt ſanctified us by thy commandments, and given us thy holy ſabbath; and of thy good will and pleaſure haſt left it to us an inheritance, the memorial of thy works of creation. For it is the beginning of the congregation of ſaints, and the memorial of the coming out of Egypt. And thou haſt alſo choſen us from all other people, and ſanctified us, and with love and pleaſure haſt left thy holy ſabbath an inheritance. Bleſſed be thou, O God, who ſanctifieſt the ſabbath." After this benediction is ended, he drinks, and gives the cup to all that are preſent. He then removes the cloth, and taking bread, ſays, "Bleſſed be thou, O God our Lord, king of the world, who bringeſt bread out of the earth." Then he breaks off a bit, and eats, and alſo gives a piece of it to every one of the company.

On the morning of the ſabbath, the Jews do not riſe ſo early as they do at other times. Thinking, the greater pleaſure they take on that day, the more devoutly they keep it. When they come into the ſynagogue, they pray as uſual, only the devotions are ſomewhat longer, being intermingled with pſalmody, in honour of the ſabbath. The Pentateuch is then produced, and ſeven ſections of it are read in order by ſeven perſons choſen for the purpoſe. Several leſſons are likewiſe read out of the prophets, which have ſome relation to what was read out of the law. After morning prayers they return to their houſes, and eat the ſecond ſabbath-meal, ſhewing every token of joy, in honour of the feſtival. But if one has ſeen any thing ominous in his ſleep; if he has dreamed that he burnt the book of the law; that a beam has come out of the walls of his houſe; that his teeth have fallen out;—then he faſts until very late at night, for all ſuch dreams are bad ones. In the afternoon they go again to the ſynagogue, and perform the evening ſervice, adding to the ordinary prayers ſome leſſons that reſpect the ſabbath. When the devotional duties are ended, they return home, and light a candle reſembling a torch, and again ſit down to eat. They remain eating until near ſix, and then the maſter of the family takes a cup, and pouring wine into it rehearſes ſome benedictions; after which he pours a little of the wine upon the ground, and ſays, "Bleſſed be thou, O Lord, King of the world, who haſt created the fruit of the vine." Then holding the cup in his left hand, with the right he takes a box of ſweet ſpices, and ſays "Bleſſed be thou, O Lord God, who haſt created various kinds of ſweet ſpices." He ſmells the ſpices, and holds them out to the reſt, that they may do the ſame. He then takes the cup in his right hand, and going to the candle views the left very narrowly, and pronounces a bleſſing. With the cup in the left hand, he examines the right in the ſame manner. Again, holding the cup in his right hand, he rehearſes another benediction, and at the ſame time pours ſome of the wine on the ground. After this he drinks a little of it, and then hands it about to the reſt of the family, who drink

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what remains. In this manner the ſabbath is ended by the Jews, and they may return to their ordinary employments. Thoſe who meet pay their compliments, by wiſhing one another a happy week.

10 Prohibitions obſerved.

The Rabbins have reckoned up nine and thirty primary prohibitions, which ought to be obſerved on the ſabbatic feſtival; but their circumſtances and dependents, which are alſo obligatory, are almoſt innumerable. The 39 articles are, Not to till the ground; to ſow; to reap; to make hay; to bind up ſheaves of corn; to threſh; to winnow; to grind; to ſift meal; to knead the dough; to bake; to ſhear; to whiten; to comb or card wool; to ſpin; to twine or twiſt; to warp; to dye; to tie; to untie; to ſew; to tear or pull in pieces; to build; to pull down; to beat with a hammer; to hunt or fiſh; to kill a beaſt; to flay it; to dreſs it; to ſcrape the ſkin; to tan it; to cut leather; to write; to ſcratch out; to rule paper for writing; to kindle a fire; to extinguiſh it; to carry a thing from place to place; to expoſe any thing to ſale. Theſe are the primary prohibitions, and each of theſe has its proper conſequences, which amount to an incredible number; and the Jews themſelves ſay, that if they could keep but two ſabbaths as they ought, they would ſoon be delivered out of all their troubles.

If a Jew on a journey is overtaken by the ſabbath in a wood, or on the highway, no matter where, nor under what circumſtances, he ſits down; he will not ſtir out of the ſpot. If he falls down in the dirt, he lies there; he will not riſe up. If he ſhould tumble into a privy, he would reſt there: he would not be taken out (A). If he ſees a flea ſkipping upon his clothes, he muſt not catch it. If it bites him, he may only remove it with his hand; he muſt not kill it; but a louſe meets with no ſuch indulgence, for it may be deſtroyed. He muſt not wipe his hands with a towel or cloth, but he may do it very lawfully with a cow's tail. A freſh wound muſt not be bound up on the ſabbath-day; a plaſter that had been formerly applied to a ſore may remain on it; but if it falls off, it muſt not be put on anew. The lame may uſe a ſtaff, but the blind muſt not. Theſe particulars, and a great many more of the ſame nature, are obſerved by the Jews in the ſtricteſt manner. But if any one wiſhes to know more of the practice of that devoted race, he may conſult Buxtorf's *Judaica Synagoga*, chap. x. xi. where he will find a complete detail of their cuſtoms and ceremonies on the ſabbath; and likewiſe ſee the primary prohibitions branched out into their reſpective circumſtances.

11 Inſtitution of Sunday or the Lord's day.

As the ſeventh day was obſerved by the Jewiſh church, in memory of the reſt of God after the works of creation, and their own deliverance from Pharaoh's tyranny; ſo the firſt day of the week has always been obſerved by the Chriſtian church, in memory of the reſurrection of Jeſus Chriſt, by which he completed the work of man's redemption on earth, and reſcued him from the dominion of him who has the power of death.

This day was denominated by the primitive Chriſtians the *Lord's day*. It was alſo ſometimes called *Sunday*; which was the name given to it by the heathens, who dedicated it to the ſun. And indeed, although it was originally called *Sunday* by the heathens, yet it may very properly retain that name among Chriſtians, becauſe it is dedicated to the honour of "The true light," which lighteth every man that cometh into the world, of Him who is ſtyled by the prophet "The Sun of righteouſneſs," and who on this day aroſe from the dead. But although it was, in the primitive times, indifferently called the *Lord's day* or *Sunday*, yet it was never denominated the *ſabbath*; a name conſtantly appropriated to Saturday, or the *ſeventh* day, both by ſacred and eccleſiaſtical writers.

12 The mention of it in the New Teſtament accidental;

Of the change from the *ſeventh* to the *firſt* day of the week, or even of the inſtitution of the *Lord's day* feſtival, there is no account in the New Teſtament. However, it may be fairly inferred from it, that the firſt day of the week was, in the apoſtolic age, a ſtated time for public worſhip. On this day the apoſtles were aſſembled, when the Holy Ghoſt came down ſo viſibly upon them to qualify them for the converſion of the world. On this day we find St Paul preaching at Troas, when the diſciples came to break bread: and the directions which the ſame apoſtle gives to the Corinthians concerning their contributions for the relief of their ſuffering brethren, plainly allude to their religious aſſemblies on the firſt day of the week.

Thus it would appear from ſeveral paſſages in the New Teſtament, that the religious obſervation of the firſt day of the week is of apoſtolical appointment; and may indeed be very reaſonably ſuppoſed to be among thoſe directions and inſtructions which our bleſſed Lord himſelf gave to his diſciples, during the 40 days between his reſurrection and aſcenſion, wherein he converſed with them, and ſpoke of the things pertaining to the kingdom of God. Still, however, it muſt be owned that thoſe paſſages, although the plaineſt that occur, are not ſufficient to prove the apoſtolical inſtitution of the Lord's day, or even the actual obſervation of it. In order, therefore, to place the matter beyond all controverſy, recourſe muſt be had to eccleſiaſtical teſtimony.

From the conſentient evidence and uniform practice of the primitive church, and alſo from the atteſtation of Pliny, an heathen of no mean figure both in learning and power, we find that the firſt day of the week was obſerved in the earlieſt ages as an holyday or feſtival, in honour of the reſurrection of Chriſt. Now there are but two ſources whence the cuſtom could poſſibly have ariſen. It muſt have been inſtituted either by *human* or *divine* authority: by human authority it was not inſtituted; for there was no general council in thoſe early times, and without the decree of a general council it was impoſſible that any eccleſiaſtical inſtitution could have been univerſally eſtabliſhed at once. It remains, therefore, that it muſt have been inſtituted by divine

13 But nevertheleſs it appears to be of divine origin.

(A) This, it ſeems, was once really the caſe. A Jew of Magdeburg fell into a privy on a Saturday. He might have been taken out; but he told thoſe who offered him their aſſiſtance to give themſelves no trouble, for there he was determined to keep holy the ſabbath day. The biſhop, when he heard of it, reſolved that he ſhould ſanctify the next day alſo in the ſame place; and ſo, betwixt them, the poor Jew loſt his life.

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divine authority: and that it really was so, will farther appear from the following considerations. It is certain that the apostles travelled over the greatest part of the world, and planted churches in the remotest parts of it. It is certain also that they were all led by the same *spirit*; and their desire was, that unity and uniformity should be observed in all the churches which they had founded. It is not therefore surprising that, in the primitive times, the same doctrine, the same worship, the same rites and customs, should prevail all over the Christian world; nay, it would have been unaccountable had the case been otherwise. For this reason we may conclude that every custom, universally observed in the early ages of the Christian church, and not instituted by a general council, was of original appointment.

24 Purpose for which the Lord's day was instituted.

As the *Lord's day* is sanctified, that is, *set apart* to Christians for the worship and service of God, their Creator, Redeemer, and Sanctifier, a little consideration will easily discover how it ought to be observed. Although a day separated from worldly business, yet it is in no sense a day of idleness, but a season appropriated to the works of salvation and labours of charity.

25 How it was observed in the primitive times.

In the primitive times this holy day was observed in the most solemn manner. From the monuments of those early ages we learn, that it was spent in a due and constant attendance on all the offices of divine worship. On it they held their religious assemblies, in which the writings of the apostles and prophets were read to the people, and the doctrines of Christianity further pressed upon them by the exhortations of the clergy. Solemn prayers and praises were offered up to God, and hymns sung in honour of Christ; the Lord's supper was constantly celebrated; and collections were made for the maintenance of the clergy and the relief of the poor. On this day they abstained, as much as they could, from bodily labour. They looked upon it as a day of joy and gladness; and therefore all fasting on it was prohibited, even during the season of lent, their great annual fast.—Such was the zeal of those times, that nothing, no not the severest persecutions, hindered them from celebrating holy offices on this day. They were often beset and betrayed, and as often slaughtered in consequence of cruel edicts from emperors, those very emperors for whose happiness and prosperity they always offered up their fervent prayers. For this cause, when they could not meet in the daytime, they assembled in the morning before it was light; and when sick, in exile, or in prison, nothing troubled them more than that they could not attend the service of the church. No trivial pretences were then admitted for any one's absence from public worship; for severe censures were passed upon all who were absent without some urgent necessity. When the empire became Christian, Constantine and his successors made laws for the more solemn observation of the Lord's day. They prohibited all prosecutions and pleadings and other juridical matters to be transacted on it, and also all unnecessary labour; not that it was looked upon as a Jewish sabbath, but because these things were considered as inconsistent with the duties of the festival.

But although the primitive Christians did not indulge themselves in the practice of unnecessary labour or trifling amusements, yet they did not wholly abstain from working, if great necessity required it. The council of *Laodicea* enjoined that men should abstain from work on the Lord's day *if possible*; but if any were found to *judaize*, they were to be censured as great transgressors. So circumspect were the primitive Christians about their conduct on this festival, that on the one hand they avoided all things which tended to profane it, whilst on the other they censured all those who insisted it should be observed with Pharisaical rigour.

26 Advantages resulting from the observation of it.

The primary duty of the Lord's day is *public worship*. The nature and design of the Christian religion sufficiently shows the necessity and importance of assembling for the duties of devotion. The whole scope of Christianity is to bring us to an union with God, which cannot be obtained or preserved without frequent communications with him; and the reasons which show religious intercourse to be the indispensable duty of Christians in a private capacity, will bind it with equal or more force on them considered as a community.

The advantages of public worship, when duly performed, are many and great. There are two, however, which deserve to be considered in a particular manner. It gives Christians an opportunity of openly professing their faith, and testifying their obedience to their Redeemer in the wisest and best manner; and in an age when atheism has arisen to an alarming height, when the Son of God is crucified afresh, and put to open shame, every man, who has any regard for religion, will cheerfully embrace all opportunities of declaring his abhorrence of the vicious courses pursued by those degenerate apostates. He will with pleasure lay hold on every occasion to testify that he is neither afraid nor ashamed to confess the truth; and will think it his indispensable duty openly to disavow the sins of others, that he may not incur the guilt of partaking of them.

Public worship preserves in the minds of men a sense of religion, without which society could not exist. Nothing can keep a body of men together and unite them in promoting the public good, but such principles of action as may reach and govern the heart. But these can be derived only from a sense of religious duties, which can never be so strongly impressed upon the mind as by a constant attendance upon public worship. Nothing can be more weak than to neglect the public worship of God, under the pretence that we can employ ourselves as acceptably to our Maker at home in our closets. Both kinds of worship are indeed necessary; but one debt cannot be paid by the discharge of another. By public worship every man professes his belief in that God whom he adores, and appeals to Him for his sincerity, of which his neighbour cannot judge. By this appeal he endears himself more or less to others. It creates confidence; it roots in the heart benevolence, and all other Christian virtues, which produce, in common life, the fruits of mutual love and general peace.

People in general are of opinion that the duties of the Lord's day are over when public worship is ended. But they seem to forget for what purpose the day was set apart. It is not only appropriated to the duties of public worship, but also [illegible] to our improvement in the knowledge of the doctrines of Christianity. It is an institution calculated to alleviate the condition of the laborious classes of mankind, and, in conse-

Sabbath. consequence of that, to afford rest to *beasts* also. It is proper, it is necessary, that man should reflect on his condition in the world, that he should examine the state of his soul, and inquire what progress he has made in that work which was given him to do. Those that have children or servants are obliged to look after *their* instruction as well as their own. These are the ends which the institution of Sunday was designed to answer. Every man must allow that these things must be done at some time or other; but unless there be *set* times for doing them, the generality of mankind would wholly neglect them.

Visiting and *travelling* (though very common) are enormous profanations of this holy day. Families are thereby robbed of their *time*; a loss for which no amends can ever be made them: Servants, instead of having leisure to improve themselves in spiritual knowledge, are burdened with additional labour: And in a man of any humanity, it must excite many painful sensations, when he reflects how often the useful horse on that day experiences all the anguish of hunger, torn sides, and battered knees. Every kind of *amusement*, every kind of *common* labour, is an encroachment on the particular duties of the Lord's day; and consequently men profane the day by spending it in any amusements, or undertaking upon it any ordinary employment unless it be a work of absolute necessity.

Sabbath-Breaking, or profanation of the Lord's day, is punished by the municipal laws of England. For, besides the notorious indecency and scandal of permitting any secular business to be publicly transacted on that day in a country professing Christianity, and the corruption of morals which usually follows its profanation, the keeping one day in seven holy, as a time of relaxation and refreshment, as well as for public worship, is of admirable service to a state, considered merely as a civil institution. It humanizes, by the help of conversation and society, the manners of the lower classes; which would otherwise degenerate into a sordid ferocity and savage selfishness of spirit: it enables the industrious workman to pursue his occupation in the ensuing week with health and cheerfulness: it imprints on the minds of the people that sense of their duty to God so necessary to make them good citizens; but which yet would be worn out and defaced by an unremitted continuance of labour, without any stated times of recalling them to the worship of their Maker. And therefore the laws of King Athelstan forbad all merchandizing on the Lord's day, under very severe penalties. And by the statute 27 Hen. VI. c. 5. no fair or market shall be held on the principal festivals, Good-friday, or any Sunday (except the four Sundays in harvest), on pain of forfeiting the goods exposed to sale. And, since, by the statute 1 Car. I. c. 1. no persons shall assemble, out of their own parishes, for any sport whatsoever, upon this day; nor, in their parishes, shall use any bull or bear beating, interludes, plays, or other unlawful exercises or pastimes; on pain that every offender shall pay 3s. 4d. to the poor. This statute does not prohibit, but rather impliedly allows, any innocent recreation or amusement, within their respective parishes, even on the Lord's day, after divine service is over. But by statute 29 Car. II. c. 7. no person is allowed to work on the Lord's day, or use any boat or barge, or expose any goods to sale, except meat in public houses, milk at certain hours, and works of necessity or charity, on forfeiture of 5s. Nor shall any drover, carrier, or the like, travel upon that day, under pain of 20s.

SABELLIANS, a sect of Christians of the 3d century, that embraced the opinions of Sabellius, a philosopher of Egypt, who openly taught that there is but one person in the Godhead.

The Sabellians maintained, that the Word and the Holy Spirit are only virtues, emanations, or functions of the Deity; and held, that he who is in heaven is the Father of all things, that he descended into the virgin, became a child, and was born of her as a son; and that having accomplished the mystery of our salvation, he diffused himself on the apostles in tongues of fire, and was then denominated the *Holy Ghost*. This they explained by resembling God to the sun, the illuminative virtue or quality of which was the Word, and its warming virtue the Holy Spirit. The Word, they taught, was darted, like a divine ray, to accomplish the work of redemption; and that being re-ascended to heaven, the influences of the Father were communicated after a like manner to the apostles.

SABIANS, an early sect of idolaters, which continues to this day, and worships the sun, moon, and stars. See POLYTHEISM, n° 10, 11, 12.

SABINA, a province of Italy, in the territories of the church; bounded on the north by Umbria, on the east by Farther Abruzzo, on the south by the Campagna of Rome, and on the west by the patrimony of St Peter. It is 22 miles in length, and almost as much in breadth; watered by several small rivers, and abounding in oil and wine. There is no walled town in it, and Magliano is the principal place.

SABINUS (George), a celebrated Latin poet, born in the electorate of Brandenburg in 1508. His poem *Res gestæ Cæsarum Germanorum*, spread his reputation all over Germany, and procured him the patronage of all the princes who had any regard for polite literature: he was made professor of the belles lettres at Frankfort on the Oder, rector of the new academy of Koningsburg, and counsellor to the elector of Brandenburg. He married two wives, the first of which was the eldest daughter of the famous reformer Melancthon; and died in 1560. His poems are well known, and have been often printed.

SABLE, or *Sable Animal*, in zoology, a creature of the weasel-kind, called by authors *mustela zibellina*. See MUSTELA, n° 6.

The chase of these animals, in the more barbarous times of the Russian empire, was the employ, or rather task, of the unhappy exiles in Siberia. As that country is now become more populous, the sables have in a great measure quitted it, and retired farther north and east, to live in desert forests and mountains: they live near the banks of rivers, or in the little islands in them; on this account they have, by some, been supposed to be the Σαβεριον of Aristotle (*Hist. An. lib.* viii. *c.* 5.), which he classes with the animals conversant among waters.

At present the hunters of sables form themselves into troops, from five to 40 each: the last subdivide into lesser parties, and each chooses a leader; but there is one that directs the whole: a small covered boat is provided for each party, loaded with provisions, a dog and

and net for every two men, and a veſſel to bake their bread in: each party alſo has an interpreter for the country they penetrate into. Every party then ſets out according to the courſe their chief points out: they go againſt the ſtream of the rivers, drawing their boats up, till they arrive in the hunting country; there they ſtop, build huts, and wait till the waters are frozen, and the ſeaſon commences: before they begin the chace, their leader aſſembles them, they unite in a prayer to the Almighty for ſucceſs, and then ſeparate: the firſt ſable they take is called *God's ſable*, and is dedicated to the church.

They then penetrate into the woods; mark the trees as they advance, that they may know their way back; and in their hunting-quarters form huts of trees, and bank up the ſnow round them: near theſe they lay their traps; then advance farther, and lay more traps, ſtill building new huts in every quarter, and return ſucceſſively to every old one to viſit the traps and take out the game to ſkin it, which none but the chief of the party muſt do: during this time they are ſupplied with proviſions by perſons who are employed to bring it on ſledges, from the places on the road, where they are obliged to form magazines, by reaſon of the impracticability of bringing quantities through the rough country they muſt paſs. The traps are a ſort of pit-fall, with a looſe board placed over it, baited with fiſh or fleſh: when ſables grow ſcarce, the hunters trace them in the new-fallen ſnow to their holes; place their nets at the entrance; and ſometimes wait, watching two or three days for the coming out of the animal: it has happened that theſe poor people have, by the failure of their proviſions, been ſo pinched with hunger, that, to prevent the cravings of appetite, they have been reduced to take two thin boards, one of which they applied to the pit of the ſtomach, the other to the back, drawing them tight together by cords placed at the ends: ſuch are the hardſhips our fellow-creatures undergo to ſupply the wantonneſs of luxury.

The ſeaſon of chace being finiſhed, the hunters reaſſemble, make a report to their leader of the number of ſables each has taken; make complaints of offenders againſt their regulations; puniſh delinquents; ſhare the booty; then continue at the head-quarters till the rivers are clear of ice; return home, and give to every church the dedicated furs.

Sable Cape, the moſt ſoutherly province of Nova Scotia, in North America, near which is a fine cod-fiſhery. W. Long. 65. 34. N. Lat. 43. 24.

Sable Iſle is adjoined to this cape, and the coaſts of both are moſt commodiouſly ſituated for fiſheries.

Sable Trade, the trade carried on in the ſkins or furs of ſables; of which the following commercial hiſtory was tranſlated by Mr J. R. Forſter from a Ruſſian performance on that ſubject by Mr Muller.

"*Sable*, *ſoble*, in Ruſſian; *zobel* in German. Their price varies from 1 l. to 10 l. Sterling, and above: fine and middling ſable-ſkins are without bellies, and the coarſe ones are with them. Forty ſkins make a collection called *zimmer*. The fineſt ſables are ſold in pairs perfectly ſimilar, and are dearer than ſingle ones of the ſame goodneſs; for the Ruſſians want thoſe in pairs for facing caps, cloaks, tippets, &c. the blackeſt are reputed the beſt. Sables are in ſeaſon from November to February; for thoſe caught at any other time of the year are ſhort-haired, and then called *nedoſobols*. The hair of ſables differs in length and quality: the long hairs, which reach far beyond the inferior ones, are called *os*; the more a ſkin has of ſuch long hairs, the blacker it is, and the more valuable is the fur; the very beſt have no other but thoſe long and black hairs. *Motchka* is a technical term uſed in the Ruſſian fur-trade, expreſſing the lower part of the long hairs; and ſometimes it comprehends likewiſe the lower and ſhorter hairs: the above-mentioned beſt ſable furs are ſaid to have a black motchka. Below the long hairs are, in the greater part of the ſable-furs, ſome ſhorter hairs, called *podoſie*, i. e. under-os; the more podoſie a fur has, it is the leſs valuable: in the better kind of ſables the podoſie has black tips, and a grey or ruſty motchka. The firſt kind of motchka makes the middling kind of ſable furs; the red one the worſt, eſpecially if it has but few os. Between the os and podoſie is a low woolly kind of hair, called *podſada*. The more podſada a fur has, the leſs valuable: for the long hair will, in ſuch caſe, take no other direction than the natural one; for the characters of ſable is, that notwithſtanding the hair naturally lies from the head towards the tail, yet it will lie equally in any direction as you ſtrike your hand over it. The various combinations of theſe characters, in regard to os, motchka, podoſie, and podſada, make many ſpecial diviſions in the goodneſs of furs: beſides this, the furriers attend to the ſize, preferring always, *cæteris paribus*, the biggeſt, and thoſe that have the greateſt gloſs. The ſize depends upon the animal being a male or a female, the latter being always ſmaller. The gloſs vaniſhes in old furs: the freſh ones have a kind of bloomy appearance, as they expreſs it; the old ones are ſaid to have done blooming: the dyed ſables always loſe their gloſs; become leſs uniform, whether the lower hairs have taken the dye or not; and commonly the hairs are ſomewhat twiſted or criſped, and not ſo ſtraight as in the natural ones. Some fumigate the ſkins, to make them look blacker; but the ſmell, and the criſped condition of the long hair, betrays the cheat; and both ways are detected by rubbing the fur with a moiſt linen cloth, which grows black in ſuch caſes.

"The Chineſe have a way of dyeing the ſables, ſo that the colour not only laſts (which the Ruſſian cheats cannot do), but the fur keeps its gloſs, and the criſped hairs only diſcover it. This is the reaſon that all the ſables, which are of the beſt kind, either in pairs or ſeparate, are carried to Ruſſia; the reſt go to China. The very beſt ſables come from the environs of Nertchitſk and Yakutſk; and in this latter diſtrict, the country about the river Ud affords ſometimes ſables, of whom one ſingle fur is often ſold at the rate of 60 or 70 rubles, 12 l. or 14 l. The bellies of ſables, which are ſold in pairs, are about two fingers breadth, and are tied together by 40 pieces, which are ſold from 1 l. to 2 l. Sterling. Tails are ſold by the hundred. The very beſt ſable-furs muſt have their tails; but ordinary ſables are often cropped, and 100 ſold from 4 l. to 8 l. Sterling. The legs or feet of ſables are ſeldom ſold ſeparately; white ſables are rare, and no common merchandize, but bought only as curioſities: ſome are yellowiſh, and are bleached in the ſpring on the ſnow."

SABLE, in heraldry, ſignifies "black;" and is borrowed from the French, as are moſt terms in this ſcience: in engraving it is expreſſed by both horizontal and perpendicular lines croſſing each other. Sable of itſelf ſignifies conſtancy, learning, and grief; and ancient heralds will have it, that when it is compounded with

Or	it ſignifies	Honour.
Arg.		Fame.
Gul.		Reſpect.
Azu.		Application.
Ver.		Comfort.
Pur.		Auſterity.

The occaſion that introduced this colour into heraldry is thus related by Alexander Niſbet, p. 8. The duke of Anjou, king of Sicily, after the loſs of that kingdom, appeared at a tournament in Germany all in black, with his ſhield of that tincture, *ſemé de larmes*, i. e. beſprinkled with drops of water, to repreſent tears, indicating by that both his grief and loſs.

SABLESTAN, or SABLUSTAN, a province of Aſia, in Perſia, on the frontiers of Indoſtan; bounded on the north by Khoraſan; on the eaſt, by the mountains of Balk and Candahar; on the ſouth, by Sageſtan or Segeſtan; and on the weſt, by Heri. It is a mountainous country, very little known to Europeans; nor is it certain which is the capital town.

SABRE, a kind of ſword or ſcimitar, with a very broad and heavy blade, thick at the back, and a little falcated or crooked towards the point. It is the ordinary weapon worn by the Turks, who are ſaid to be very expert in the uſe of it.

SABURRA, in medicine, uſually denotes any collection of half putrid indigeſted matter in the ſtomach and inteſtines, by which the operation of digeſtion is impeded.

SABURRÆ, GRITTS, in natural hiſtory; a genus of foſſils, found in minute maſſes, forming together a kind of powder, the ſeveral particles of which are of no determinate ſhape, nor have any tendency to the figure of cryſtal, but ſeem rudely broken fragments of larger maſſes; not to be diſſolved or diſunited by water, but retaining their figure in it, and not cohering by means of it into a maſs; conſiderably opake, and in many ſpecies fermenting with acids; often fouled with heterogene matters, and not unfrequently taken in the coarſer ſtony and mineral or metalline particles.

Gritts are of various colours, as, 1. The ſtony and ſparry gritts, of a bright or greyiſh white colour. 2. The red ſtony gritts. 3. The green ſtony gritts, compoſed of homogene ſparry particles. 4. The yellow gritt, of which there is only one ſpecies. 5. The black and blackiſh gritts, compoſed of ſtony or talky particles.

SACÆA, a feaſt which the ancient Babylonians and other orientals held annually in honour of the deity Anaitis. The Sacæa were in the Eaſt what the Saturnalia were at Rome, viz. a feaſt for the ſlaves. One of the ceremonies was to chooſe a priſoner condemned to death, and allow him all the pleaſures and gratifications he would wiſh, before he were carried to execution.

SACCADE, in the manege, is a jerk more or leſs violent, given by the horſeman to the horſe, in pulling or twitching the reins of the bridle all on a ſudden and with one pull, and that when a horſe lies heavy upon the hand, or obſtinately arms himſelf.

This is a correction uſed to make a horſe carry well; but it ought to be uſed diſcreetly, and but ſeldom.

SACERDOTAL, ſomething belonging to prieſts. See PRIEST.

SACCULUS, in anatomy, a diminutive of ſaccus, ſignifies a little bag, and is applied to many parts of the body.

SACCHARUM, SUGAR, or the *Sugar-Cane*, in botany: A genus of the digynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 4th order, *Gramina*. There is no calyx, but a long down; the corolla is bivalved. There is but one ſpecies of this genus, viz. the officina. It is a native of Africa, the Eaſt Indies, and of Brazil; from whence it was introduced into our Weſt India iſlands ſoon after they were ſettled. The ſugar-cane is the glory and the pride of thoſe iſlands. It amply rewards the induſtrious planter, enriches the Britiſh merchant, gives bread to thouſands of manufacturers and ſeamen, and brings an immenſe revenue to the crown. For the proceſs of making ſugar, ſee SUGAR.

Sugar, formerly a luxury, is now become one of the neceſſaries of life. In crop-time every negro on the plantations, and every animal, even the dogs, grow fat. This ſufficiently points out the nouriſhing and healthy qualities of ſugar. It has been alleged, that the eating of ſugar ſpoils the colour of, and corrupts, the teeth: this, however, proves to be a miſtake, for no people on the earth have finer teeth than the negroes in Jamaica. Dr Alſton, formerly profeſſor of botany and materia medica at Edinburgh, endeavoured to obviate this vulgar opinion: he had a fine ſet of teeth, which he aſcribed ſolely to his eating great quantities of ſugar. Externally too it is often uſeful: mixed with the pulp of roaſted oranges, and applied to putrid or ill-diſpoſed ulcers, it proves a powerful corrector.

SACCHI (Andrea), a celebrated painter, born at Rome in 1594. He was the diſciple of Franciſco Albano, whom he afterwards ſurpaſſed in taſte and correctneſs. He diſtinguiſhed himſelf in a very eminent degree by his paintings in freſco; and a ſtrong emulation ſubſiſting between him and Pietro de Cortona, they each arrived at a degree of perfection that neither of them might have known without ſuch a competition. The works of Sacchi have ſuch intrinſic merit, and are finiſhed with ſuch uncommon care and ſkill, as will always ſecure the applauſe of the judicious, and preſerve their true value. He died in 1668.

SACHEVEREL (Dr Henry), a famous clergyman of the Tory faction in the reign of queen Anne; who diſtinguiſhed himſelf by indecent and ſcurrilous ſermons and writings againſt the diſſenters and revolution principles. He owed his conſequence, however, to being indiſcreetly proſecuted by the houſe of lords for his aſſize-ſermon at Derby, and his 5th of November ſermon at St Paul's in 1709; in which he aſſerted the doctrine of non-reſiſtance to government in its utmoſt extent; and reflected ſeverely on the act of toleration. The high and low church parties were very violent at that time; and the trial of Sacheverel inflamed the high-church party to dangerous riots and exceſſes: he was, however, ſuſpended for three years, and his ſermons burned by the common hangman. The Tories being in

in adminiſtration when Sacheverel's ſuſpenſion expired, he was freed with every circumſtance of honour and public rejoicing; was ordered to preach before the commons on the 20th of May, had the thanks of the houſe for his diſcourſe, and obtained the valuable rectory of St Andrew's, Holborn.

SACK, a wine uſed by our anceſtors, which ſome have taken to be Rheniſh and ſome Canary wine — Venner, in his *Via Recta ad Vitam Longam*, printed in 1628, ſays that ſack is "completely not in the third degree, and that ſome affect to drink ſack with ſugar and ſome without; and upon no other ground, as I think, but as it is beſt pleaſing to their palate." He goes on to ſay, "that ſack, taken by itſelf, is very hot and very penetrative; being taken with ſugar, the heat is both ſomewhat allayed, and the penetrative quality thereof alſo retarded." He adds further, that Rheniſh, &c. decline after a twelvemonth, but ſack and the other ſtronger wines are beſt when they are two or three years old. It appears to be highly probable that ſack was not a ſweet wine, from its being taken with ſugar, and that it did not receive its name from having a ſaccharine flavour, but from its being originally ſtored in ſacks or borachios. It does not appear to have been a French wine, but a ſtrong wine the production of a hot climate. Probably it was what is called dry mountain, or ſome Spaniſh wine of that kind. This conjecture is the more plauſible, as Howell, in his French and Engliſh Dictionary, printed in the year 1650, tranſlates ſack by the words *vin d'Eſpagne, vin ſec.*

Sack of Wool, a quantity of wool containing juſt 22 ſtone, and every ſtone 14 pounds. In Scotland, a ſack is 24 ſtone, each ſtone containing 16 pounds.

Sack of Cotton Wool, a quantity from one hundred and a half to four hundred weight.

Sacks of Earth, in fortification, are canvas bags filled with earth. They are uſed in making retrenchments in haſte, to place on parapets, or the head of the breaches, &c. to repair them, when beaten down.

SACKBUT, a muſical inſtrument of the wind kind, being a ſort of trumpet, though different from the common trumpet both in form and ſize; it is fit to play a baſs, and is contrived to be drawn out or ſhortened, according to the tone required, whether grave or acute. The Italians call it *trombone*, and the Latins *tuba ductilis*.

SACKVILLE (Thomas, Lord Buckhurſt, and earl of Dorſet), a ſtateſman and poet, the ſon of Richard Sackville, Eſq; of Buckhurſt, in the pariſh of Withian in Suſſex, was born in the year 1536. He was ſent to Hart-hall in Oxford, in the latter end of the reign of Edward VI. whence he removed to Cambridge, where he took a maſter of arts degree, and thence to the Inner Temple. He now applied himſelf to the ſtudy of the law, and was called to the bar. We are told that he commenced poet whilſt at the univerſities, and that theſe his juvenile productions were much admired, none of which, however, have been preſerved. — In the fourth and fifth year of queen Mary, we find him a member of the houſe of commons; about which time, in 1557, he wrote a poetical piece, intitled *The Induction*, or *The Mirror of Magiſtrates*. This laſt was meant to comprehend all the unfortunate Great from the beginning of our hiſtory; but the deſign being dropped, it was inſerted in the body of the work. The Mirror of Magiſtrates is formed on a dramatic plan; in which the perſons are introduced ſpeaking. The Induction is written much in the ſtyle of Spencer, who, with ſome probability, is ſuppoſed to have imitated this author. Sackville.

In 1561, his tragedy of *Gorboduc* was acted before queen Eliſabeth by the gentlemen of the Inner Temple. This was the firſt tolerable tragedy in our language. The Companion to the Play-houſe tells us, that the three firſt acts were written by Mr Tho. Norton. Sir Philip Sidney, in his Apology for Poetry, ſays, "it is full of ſtately ſpeeches, and well-ſounding phraſes, climbing to the height of Seneca in his ſtyle, &c." Rymer ſpeaks highly in its commendation. Mr Spence, at the inſtigation of Mr Pope, republiſhed it in 1736, with a pompous preface. It is ſaid to be our firſt dramatic piece written in verſe.

In the firſt parliament of this reign, Mr Sackville was member for Suſſex, and for Bucks in the ſecond. In the mean time he made the tour of France and Italy, and in 1566 was impriſoned at Rome, when he was informed of his father's death, by which he became poſſeſſed of a very conſiderable fortune.

Having now obtained his liberty, he returned to England; and being firſt knighted was created Lord Buckhurſt. In 1570 he was ſent ambaſſador to France. In 1586 he was one of the commiſſioners appointed to try the unfortunate Mary queen of Scots; and was the meſſenger employed to report the confirmation of her ſentence, and to ſee it executed. The year following he went ambaſſador to the States General, in conſequence of their complaint againſt the earl of Leiceſter; who, diſliking his impartiality, prevailed on the queen to recal him, and confine him to his houſe. In this ſtate of confinement he continued about 10 months, when Leiceſter dying, he was reſtored to favour, and in 1580 was installed knight of the garter: but the moſt incontrovertible proof of the queen's partiality for lord Buckhurſt appeared in the year 1591, when ſhe caused him to be elected chancellor in the univerſity of Oxford, in oppoſition to her favourite Eſſex. In 1598, on the death of the treaſurer Burleigh, lord Buckhurſt ſucceeded him, and by virtue of his office became in effect prime miniſter; and when, in 1601, the earls of Eſſex and Southampton were brought to trial, he ſat as lord high ſteward on that awful occaſion.

On the acceſſion of James I. he was graciouſly received, had the office of lord high treaſurer confirmed to him for life, and was created earl of Dorſet. He continued in high favour with the king till the day of his death; which happened ſuddenly, on the 19th of April 1608, in the council-chamber at Whitehall. He was interred with great ſolemnity in Weſtminſter abbey. He was a good poet, an able miniſter, and an honeſt man. From him is deſcended the preſent noble family of the Dorſets. "It were needleſs (ſays Mr Walpole) to add, that he was the patriarch of a race of genius and wit."

Sackville (Charles, earl of Dorſet), a celebrated wit and poet, deſcended from the foregoing, was born in 1637. He was, like Villiers, Rocheſter, Sedley, &c. one of the libertines of king Charles's court, and ſometimes indulged himſelf in inexcuſable exceſſes. He openly diſcountenanced the violent meaſures of James II. and engaged early for the prince of Orange,

Orange, by whom he was made lord chamberlain of the houſehold, and taken into the privy-council. He died in 1706, and left ſeveral poetical pieces, which, though not conſiderable enough to make a volume by themſelves, may be found among the works of the minor poets, publiſhed in 1749.

SACRAMENT is derived from the Latin word *ſacramentum*, which ſignifies an oath, particularly the oath taken by ſoldiers to be true to their country and general. The words of this oath, according to Polybius, were, *obtemperaturus ſum et facturus quicquid mandabitur ab imperatoribus juxta vires*. The word was adopted by the writers of the Latin church, and employed, perhaps with no great propriety, to denote thoſe ordinances of religion by which Chriſtians came under an obligation, equally ſacred with that of an oath, to obſerve their part of the covenant of grace, and in which they have the aſſurance of Chriſt that he will fulfil his part of the ſame covenant.

Of ſacraments, in this ſenſe of the word, Proteſtant churches admit of but two; and it is not eaſy to conceive how a greater number can be made out from Scripture, if the definition of a ſacrament be juſt which is given by the church of England. By that church, the meaning of the word ſacrament is declared to be "an outward and viſible ſign of an inward and ſpiritual grace given unto us, ordained by Chriſt himſelf as a means whereby we receive the ſame, and a pledge to aſſure us thereof." According to this definition, baptiſm and the Lord's Supper are certainly ſacraments; for each conſiſts of an outward and viſible ſign of what is believed to be an inward and ſpiritual grace; both were ordained by Chriſt himſelf, and by the reception of each does the Chriſtian come under a ſolemn obligation to be true to his divine maſter, according to the terms of the covenant of grace. (See Baptism and *Supper of the Lord.*) The Romaniſts, however, add to this number *confirmation*, *penance*, *extreme unction*, *ordination*, and *marriage*, holding in all ſeven ſacraments; but two of thoſe rites not being peculiar to the Chriſtian church cannot poſſibly be *Chriſtian* ſacraments, in contradiſtinction to the ſacraments or obligations into which men of all religions enter. Marriage was inſtituted from the beginning, when God made man male and female, and commanded them to be fruitful, and multiply and repleniſh the earth; and penance, as far as it is of the ſame import with repentance, has a place in all religions which teach that God is merciful, and men fallible.—The external ſeverities impoſed upon penitents by the church of Rome (ſee Penance) may indeed be in ſome reſpects peculiar to the diſcipline of that church, though the penances of the Hindoos are certainly as rigid; but none of theſe ſeverities were ordained by Chriſt himſelf as the pledge of an inward and ſpiritual grace; nor do they, like baptiſm and the Lord's Supper, bring men under obligations which are ſuppoſed to be analogous to the meaning of the word *ſacramentum*. Confirmation has a better title to the appellation of a ſacrament than any of the other five popiſh rites of that name, though it certainly was not conſidered as ſuch by the earlieſt writers of the Chriſtian church, nor does it appear to have been ordained by Chriſt himſelf, (ſee Confirmation). Ordination is by many churches conſidered as a very important rite; but as it is not adminiſtered to *all* men, nor has any particular form appropriated to it in the New Teſtament, it cannot be conſidered as a Chriſtian ſacrament conferring grace generally neceſſary to ſalvation. It is rather a form of authoriſing certain perſons to perform certain offices, which reſpect not themſelves but the whole church; and extreme unction is a rite which took its riſe from the miraculous powers of the primitive church vainly claimed by the ſucceeding clergy. (See Ordination and *Extreme Unction*.) Theſe conſiderations ſeem to have ſome weight with the Romiſh clergy themſelves; for they call the euchariſt, by way of eminence, the *holy ſacrament*. Thus to expoſe the holy ſacrament, is to lay the conſecrated hoſt on the altar to be adored.—The proceſſion of the holy ſacrament is that in which this hoſt is carried about the church, or about a town.

Numerous as we think the ſacraments of the Romiſh church, a ſect of Chriſtians ſprung up in England early in the current century who increaſed their number.—The founder of this ſect was a Dr Deacon, we think, of Mancheſter, where the remains of it ſubſiſted very lately, and probably do ſo at preſent. According to theſe men, every *rite* and every *phraſe* in the book called the *Apoſtolical Conſtitutions* were certainly in uſe among the apoſtles themſelves. Still, however, they make a diſtinction between the greater and the leſſer ſacraments. The greater ſacraments are only two, baptiſm and the Lord's ſupper. The leſſer are no fewer than ten, viz. five belonging to baptiſm, *exorciſm*, *anointing with oil*, *the white garment*, *a taſte of milk and honey*, and *anointing with chriſm* or *ointment*. The other five are, *the ſign of the croſs*, *impoſition of hands*, *unction of the ſick*, *holy orders*, and *matrimony*. Of the nature of theſe leſſer ſacraments, or the grace which they are ſuppoſed to confer, our limits will permit us to give no account.—Nor is it neceſſary that we ſhould. The ſect which taught them, if not extinguiſhed, is certainly in its laſt wane. It has produced, however, one or two learned men; and its founder's Full, True, and Comprehenſive View of Chriſtianity, in two Catechiſms, is a work which the Chriſtian antiquary will read with pleaſure for information, and the philoſopher for the materials which it contains for meditation on the workings of the human mind. It was publiſhed in 8vo, in the year 1748.

Congregation of the Holy Sacrament, a religious eſtabliſhment formed in France, whoſe founder was Autherius, biſhop of Bethlehem, and which, in 1644, received an order from Urban VIII. to have always a number of eccleſiaſtics ready to exerciſe their miniſtry among pagan nations, wherever the pope, or congregation *de propaganda*, ſhould appoint.

SACRAMENTARIANS, a general name given to all ſuch as have publiſhed or held erroneous doctrines of the ſacrament of the Lord's Supper. The term is chiefly applied among Roman Catholics, by way of reproach, to the Lutherans, Calviniſts, and other Proteſtants.

SACRAMENTARY, an ancient Romiſh church-book, which contains all the prayers and ceremonies practiſed at the celebration of the ſacraments.

It was wrote by pope Gelaſius, and afterwards reviſed, corrected, and abridged, by St Gregory.

SACRE, or Saker, in ornithology, the name of a ſpecies of falcon, called by authors *falco ſacer*, and differently

ently described by different authors, but by all agreed to be an extremely bold and active bird. It is a native of the northern regions of Europe; and a variety called by some writers the *speckled partridge hawk* is found at Hudson's bay, North America.

SACRED, something holy, or that is solemnly offered and consecrated to God, with benedictions, unctions, &c.

Kings, prelates, and priests, are reckoned sacred persons; abbots are only blessed.—The deaconhood, subdeaconhood, and priesthood, are all sacred orders, and are said to impress a sacred indelible character. The custom of consecrating kings with holy oil is derived (says Gutlingius) from the Hebrews; among whom, he agrees with Grotius, it was never used but to kings who had not an evident right by succession. He adds, that the Christian emperors never used it before Justin the younger; from whom he takes it to have passed to the Goths, &c.

SACRED is also applied to things belonging to God and the church. Church-lands, ornaments, &c. are held sacred.—The sacred college is that of the cardinals.

SACRED Majesty, is applied to the emperor and to the king of England; yet Loyseau says it is blasphemy. See MAJESTY. The ancients held a place struck with thunder as sacred. In the civil law, sacred place chiefly denotes that where a person deceased has been interred.

SACRED Elixir. See ELIXIR.

SACRIFICE, an offering made to God on an altar, by means of a regular minister, as an acknowledgment of his power, and a payment of homage. Sacrifices (though the term is sometimes used to comprehend all the offerings made to God, or in any way devoted to his service and honour) differ from mere oblations in this, that in a sacrifice there is a real destruction or change of the thing offered; whereas an oblation is only a simple offering or gift, without any such change at all: thus, all sorts of tythes, and first fruits, and whatever of mens worldly substance is consecrated to God, for the support of his worship and the maintenance of his ministers, are offerings or oblations: and these, under the Jewish law, were either of living creatures or other things: but sacrifices, in the more peculiar sense of the term, were either wholly or in part consumed by fire. They have by divines been divided into bloody and unbloody. Bloody sacrifices were made of living creatures; unbloody of the fruits of the earth. They have also been divided into *expiatory*, *impetratory*, and *eucharistical*. The first kind were offered to obtain of God forgiveness of sins; the second, to procure some favour; and the third, to express thankfulness for favours already received. Under one or other of these heads may all sacrifices be arranged; though we are told, that the Egyptians had 666 different kinds, a number surpassing all credibility.

Concerning the origin of sacrifices very various opinions have been held. By many, the Phœnicians are supposed to have been the authors of them; though Porphyry attributes their invention to the Egyptians; and Ovid imagines, from the import of the name *victim* and *hostia*, that no bloody sacrifices were offered till wars prevailed in the world, and nations obtained victories over their enemies. These are mere hypotheses, contradicted by the most authentic records of antiquity, and entitled to no regard. Sacrifice.

By modern deists, sacrifices are said to have had their origin in superstition, which operates much in the same way in every country. It is therefore weak, according to those men, to derive this practice from any particular people; since the same mode of reasoning would lead various nations, without any intercourse with each other, to entertain the same opinions respecting the nature of their gods, and the proper means of appeasing their anger. Men of gross conceptions imagine their deities to be like themselves, covetous and cruel. They are accustomed to appease an injured neighbour by a composition in money; and they endeavour to compound in the same manner with their gods, by rich offerings to their temples and to their priests. The most valuable property of a simple people is their cattle. These offered in sacrifice are supposed to be fed upon by the divinity, and are actually fed upon by his priests. If a crime is committed which requires the punishment of death, it is accounted perfectly fair to appease the deity by offering one life for another; because, by savages, punishment is considered as a debt for which a man may compound in the best way that he can, and which one man may pay for another. Hence, it is said, arose the absurd notions of imputed guilt and vicarious atonement. Among the Egyptians, a white bull was chosen as an expiatory sacrifice to their god Apis. After being killed at the altar, his head was cut off, and cast into the river, with the following execration: "May all the evils impending over those who perform this sacrifice, or over the Egyptians in general, be averted on this head *."

* Herodotus, lib. ii.

Had sacrifice never prevailed in the world but among such gross idolaters as worshipped departed heroes, who were supposed to retain in their state of deification all the passions and appetites of their mortal state, this account of the origin of that mode of worship would have been to us perfectly satisfactory. We readily admit, that such mean notions of their gods may have actually led far distant tribes, who could not derive any thing from each other through the channel of tradition, to imagine that beings of human passions and appetites might be appeased or bribed by costly offerings. But we know from the most incontrovertible authority, that sacrifices of the three kinds that we have mentioned were in use among people who worshipped the true God, and who must have had very correct notions of his attributes. Now we think it impossible that such notions could have led any man to fancy that the taking away of the life of a harmless animal, or the burning of a cake or other fruits of the earth in the fire, would be acceptable to a Being self-existent, omnipotent, and omniscient, who can neither be injured by the crimes of his creatures, nor receive any accession of happiness from a thousand worlds.

Sensible of the force of such reasoning as this, some persons of great name, who admit the authenticity of the Jewish and Christian sacrifices, and firmly rely on the atonement made by Christ, are yet unwilling (it is difficult to conceive for what reason) to allow that sacrifices were originally instituted by God. Of this way of thinking were St Chrysostom, Spencer, Grotius, and Warburton, as were likewise the Jews Maimonides, R. Levi,

Levi, Ben Gerson, and Abarbanel. The greater part of these writers maintain, that sacrifices were at first a human institution; and that God, in order to prevent their being offered to idols, introduced them into his service, though he did not approve of them as good in themselves, or as proper rites of worship. That the infinitely wise and good God should introduce into his service improper rites of worship, appears to us so extremely improbable, that we cannot but wonder how such an opinion should ever have found its way into the minds of such men as those who held it. Warburton's theory of sacrifice is much more plausible, and being more lately published, is worthy of particular examination.

According to this ingenious prelate, sacrifices had their origin in the sentiments of the human heart, and in the ancient mode of conversing by action in aid of words. Gratitude to God for benefits received is natural to the mind of man, as well as his bounden duty. "This duty (says the bishop *) was in the most early times discharged in expressive actions, the least equivocal of which was the offerer's bringing the first fruits of pasturage or agriculture to that sequestered place where the Deity used to be more solemnly invoked, at the stated times of public worship; and there presenting them in homage, with a demand which spoke to this purpose. —'I do hereby acknowledge thee, O my God! to be the author and giver of all good: and do now, with humble gratitude, return my warmest thanks for these thy blessings particularly bestowed upon me."—Things thus devoted became thenceforth sacred: and to prevent their *desecration*, the readiest way was to send them to the table of the priest, or to consume them in the fire of the altar. Such, in the opinion of our author, was the origin of eucharistical sacrifices. *Impetratory* or *precative* sacrifices had, he thinks, the same origin, and were contrived to express by action an invocation for the continuance of God's favour. "Expiatory sacrifices (says the learned prelate) were in their own nature as intelligible, and in practice as rational, as either of the other two. Here, instead of presenting the first fruits of agriculture and pasturage, in corn, wine, oil, and wool, as in the eucharistical, or a portion of what was to be sown or otherwise propagated, as in the *impetratory*; some chosen animal precious to the repenting criminal, who deprecates or supposed to be obnoxious to the Deity who is to be appeased, was offered up and slain at the altar, in an action which, in all languages, when translated into words, speaks to this purpose:—'I confess my transgressions at thy footstool, O my God! and with the deepest contrition implore thy pardon; confessing that I deserve death for those my offences.'—The latter part of the confession was more forcibly expressed by the *action* of striking the devoted animal, and depriving it of life; which, when put into words, concluded in this manner.—'And I own that I myself deserve the death which I now inflict on this animal.'

* *Divine Leg.* b. ix. c. 2.

This system of sacrifice, which his lordship thinks so well supported by the most early movements of simple nature, we admit to be ingenious, but by no means satisfactory. That mankind in the earlier ages of the world were accustomed to supply the deficiencies of their language by expressive gesticulations we are not inclined to controvert: the custom prevails among savage nations, or nations half civilized, at the present day. His lordship, however, is of opinion, and we heartily agree with him, that our first parents were instructed by God to make articulate sounds significant of ideas, notions, and things (see LANGUAGE, n° 6.), and not left to fabricate a language for themselves. That this heaven-taught language could be at first copious, no man will suppose who thinks of the paucity of ideas which those who spoke it had to express; but when we consider its origin, we cannot entertain a doubt but that it was precise and perspicuous, and admirably adapted to all the real purposes of life. Among these purposes must surely be included the worship of God as the most important of all. Every sentiment therefore which enters into worship, gratitude, invocation, confession, and deprecation, the progenitors of mankind were undoubtedly taught to clothe in words the most significant and unequivocal; but we know from Moses, whose divine legation the bishop surely admitted, that Cain and Abel, the eldest children of our first parents, worshipped God by the rites of sacrifice: and can we suppose that this practice occurred to *them* from their having so far forgotten the language taught them by their father, as to be under the necessity of denoting by action what they could not express by words? If this supposition be admitted, it will force another upon us still more extravagant. Even Adam himself must, in that case, have become dumb in consequence of his fall; for it is not conceivable, that as long as he was able to utter articulate sounds, and affix a meaning to them, he would cease, in the presence of his family, to confess his sins, implore forgiveness, and express his gratitude to God for all his mercies.

The right reverend writer, as if aware of some such objection as this to his theory, contends, that if sacrifices had arisen from any other source than the light of reason, the Scripture would not have been silent concerning that source; "especially since we find Moses carefully recording what *God* immediately, and not *nature*, taught to Adam and his family. Had the original of sacrifice, says he, been prescribed, and directly commanded by the Deity, the sacred historian could never have omitted the express mention of that circumstance. The two capital observances in the Jewish ritual were the SABBATH and SACRIFICES. To impress the highest reverence and veneration on the *Sabbath*, he is careful to record its divine original: and can we suppose that, had sacrifices had the same original, he would have neglected to establish this truth at the time that he recorded the other, since it is of equal use and of equal importance? I should have said, indeed, of much greater; for the multifarious *sacrifices* of the LAW had not only a reference to the *forfeiture* of Adam, but likewise prefigured our redemption by Jesus Christ."

But all this reasoning was foreseen, and completely answered before his lordship gave it to the public. It is probable, that though the distinction of weeks was well known over all the eastern world, the Hebrews, during their residence in Egypt, were very negligent in their observance of the Sabbath. To enforce a religious observance of that sacred day, it became necessary to inform them of the time and occasion of its first institution, that they might keep it holy in memory of the creation; but, in a country like Egypt, the people were in danger of holding sacrifices rather in too high than too low veneration, so that there was not the same necessity

ceſſity for mentioning explicitly the early inſtitution of them. It was ſufficient that they knew the divine inſtitution of their own ſacrifices, and the purpoſes for which they were offered. Beſides this, there is reaſon to believe, that, in order to guard the Hebrews from the infections of the heathen, the rite of ſacrificing was loaded with many additional ceremonies at its ſecond inſtitution under Moſes. It might, therefore, be improper to relate its original ſimplicity to a rebellious people, who would think themſelves ill-uſed by any additional burdens of trouble or expence, however really neceſſary to their happineſs. Biſhop Warburton ſees clearly the neceſſity of concealing from the Jews the ſpiritual and refined nature of the Chriſtian diſpenſation, leſt ſuch a backſliding people ſhould, from the contemplation of it, have held in contempt their own economy. This, he thinks, is the reaſon why the prophets, ſpeaking of the reign of the Meſſiah, borrow their images from the Moſaic diſpenſation, that the people living under that diſpenſation might not deſpiſe it from perceiving its end; and we think the reaſon will hold equally good for their lawgiver concealing from them the ſimplicity of the firſt ſacrifices, leſt they ſhould be tempted to murmur at their own multifarious ritual.

But his lordſhip thinks that ſacrifices had their origin from the light of natural reaſon. We ſhould be glad to know what light natural reaſon can throw upon ſuch a ſubject. That ignorant pagans, adoring as gods departed heroes, who ſtill retained their ſenſual appetites, might naturally think of appeaſing ſuch beings with the fat of fed beaſts, and the perfumes of the altar, we have already admitted; but that Cain and Abel, who knew that the God whom they adored has neither body, parts, nor paſſions; that he created and ſuſtains the univerſe; and that from his very nature he muſt will the happineſs of all his creatures, ſhould be led by the light of natural reaſon to think of appeaſing him, or obtaining favours from him, by putting to death harmleſs animals, is a poſition which no arguments of his lordſhip can ever compel us to admit. That Abel's ſacrifice was indeed accepted, we know; but it was not accepted becauſe it proceeded from the movements of the human mind, and the deficiency of the original language, but becauſe it was offered through *faith*. The light of natural reaſon, however, does not generate faith, but ſcience; and when it fails of that, its offſpring is abſurdity. "Faith is the ſubſtance of things hoped for, the evidence of things not ſeen," and comes not by reaſoning but by hearing. What things then were they of which Abel had heard, for which he hoped, and in the faith of which he offered ſacrifice? Undoubtedly it was a reſtoration to that immortality which was forfeited by the tranſgreſſion of his parents. Of ſuch redemption an obſcure intimation had been given to Adam, in the promiſe that the ſeed of the woman ſhould bruiſe the head of the ſerpent; and it was doubtleſs to impreſs upon his mind in more ſtriking colours the manner in which this was to be done, that bloody ſacrifices were firſt inſtituted †. As long as the import of ſuch rites was thus underſtood, they conſtituted a perfectly rational worſhip, as they ſhowed the people that the wages of ſin is death; but when men ſunk into idolatry, and loſt all hopes of a reſurrection from the dead, the ſlaughtering of animals to appeaſe their deities was a practice groſsly ſuperſtitious. It reſted in itſelf without pointing to any farther end, and the grovelling worſhippers believed that by their ſacrifices they purchaſed the favour of their deities. When once this notion was entertained, human ſacrifices were ſoon introduced; for it naturally occurred to thoſe who offered them, that what they moſt valued themſelves would be moſt acceptable to their offended gods, (ſee the next article). By the Jewiſh law, thoſe abominable offerings were ſtrictly forbidden, and the whole ritual of ſacrifice reſtored to its original purity, though not ſimplicity.

See Probity.

All Chriſtian churches, the Socinian, if it can be called a church, not excepted, have till very lately agreed in believing that the Jewiſh ſacrifices ſerved, amongſt other uſes, for types of the death of Chriſt and the Chriſtian worſhip, (ſee Type.) In this belief all ſober Chriſtians agree ſtill, whilſt many are of opinion that they were likewiſe fœderal rites, as they certainly were conſidered by the ancient Romans *.

Of the various kinds of Jewiſh ſacrifices, and the ſubordinate ends for which they were offered, a full account is given in the books of Moſes. When an Iſraelite offered a loaf or a cake, the prieſt broke it in two parts; and ſetting aſide that half which he reſerved for himſelf, broke the other into crumbs, poured oil, wine, incenſe, and ſalt upon it, and ſpread the whole upon the fire of the altar. If theſe offerings were accompanied with the ſacrifice of an animal, they were thrown upon the victim to be conſumed along with it. If the offerings were of the ears of new corn, they were parched at the fire, rubbed in the hand, and then offered to the prieſt in a veſſel, over which he poured oil, incenſe, wine, and ſalt, and then burnt it upon the altar, having firſt taken as much of it as of right belonged to himſelf.

The principal ſacrifices among the Hebrews conſiſted of bullocks, ſheep, and goats; but doves and turtles were accepted from thoſe who were not able to bring the other: theſe beaſts were to be perfect, and without blemiſh. The rites of ſacrificing were various; all of which are very minutely deſcribed in the books of Moſes.

The manner of ſacrificing among the Greeks and Romans was as follows. In the choice of the victim, they took care that it was without blemiſh or imperfection; its tail was not to be too ſmall at the end; the tongue not black, nor the ears cleft; and that the bull was one that had never been yoked. The victim being pitched upon, they gilt his forehead and horns, eſpecially if a bull, heifer, or cow. The head they alſo adorned with a garland of flowers, a woollen infula or holy fillet, whence hung two rows of chaplets with twiſted ribands; and on the middle of the body a kind of ſtole, pretty large, hung down on each ſide: the leſſer victims were only adorned with garlands and bundles of flowers, together with white tufts or wreaths.

The victims thus prepared were brought before the altar; the leſſer being driven to the place, and the greater led by an halter; when, if they made any ſtruggle, or refuſed to go, the reſiſtance was taken for an ill omen, and the ſacrifice frequently ſet aſide. The victim thus brought was carefully examined, to ſee that there was no defect in it; then the prieſt, clad in his ſacerdotal habit, and accompanied with the ſacrificers and other attendants, and being washed and purified according

* Tit. Liv. lib. 21. cap. 45.

Sacrifice. cording to the ceremonies prescribed, turned to the right hand, and went round the altar, sprinkling it with meal and holy water, and also besprinkling those who were present. Then the crier proclaimed with a loud voice, Who is here? To which the people replied, Many and good. The priest then having exhorted the people to join with him by saying, Let us pray, confessed his own unworthiness, acknowledging that he had been guilty of divers sins; for which he begged pardon of the gods, hoping that they would be pleased to grant his requests, accept the oblations offered them, and send them all health and happiness; and to this general form added petitions for such particular favours as were then desired. Prayers being ended, the priest took a cup of wine; and having tasted it himself, caused his assistants to do the like; and then poured forth the remainder between the horns of the victim. Then the priest or the crier, or sometimes the most honourable person in the company, killed the beast, by knocking it down or cutting its throat. If the sacrifice was in honour of the celestial gods, the throat was turned up towards heaven, but if they sacrificed to the heroes or infernal gods, the victim was killed with its throat towards the ground. If by accident the beast escaped the stroke, leaped up after it, or expired with pain and difficulty, it was thought to be unacceptable to the gods. The beast being killed, the priest inspected its entrails, and made predictions from them. They then poured wine, together with frankincense, into the fire, to increase the flame, and then laid the sacrifice on the altar; which in the primitive times was burnt whole to the gods, and thence called an *holocaust*; but in after-times, only part of the victim was consumed in the fire, and the remainder reserved for the sacrificers; the thighs, and sometimes the entrails, being burnt to their honour, the company feasted upon the rest. During the sacrifice, the priest, and the person who gave the sacrifice, jointly prayed, laying their hand upon the altar. Sometimes they played upon musical instruments in the time of the sacrifice, and on some occasions they danced round the altar, singing sacred hymns in honour of the god.

Human Sacrifices, an abominable practice, about the origin of which different opinions have been formed.—The true account seems to be that which we have given in the preceding article. When men had gone so far as to indulge the fancy of bribing their gods by sacrifice, it was natural for them to think of enhancing the value of so cheap an *atonement* by the cost and rarity of the offering; and, oppressed with their malady, they never rested till they had got to that which they conceived to be the most precious of all, a human sacrifice. "It was customary (says Sanchoniathon †), in ancient times, in great and public calamities, before things became incurable, for princes and magistrates to offer up in sacrifice to the avenging dæmons the dearest of their offspring." Sanchoniathon wrote of Phœnicia, but the practice prevailed in every nation under heaven of which we have received any ancient account. The Egyptians had it in the early part of their monarchy. The Cretans likewise had it, and retained it for a longer time.—The nations of Arabia did the same. The people of Dumah, in particular, sacrificed every year a child, and buried it underneath an altar, which they made use of instead of an idol; for they did not admit of images.

† *Apud Euseb. Præp. Evang.* lib. 4.

The Persians buried people alive. Amestris, the wife of Xerxes, entombed 12 persons quick under ground for the good of her soul. It would be endless to enumerate every city, or every province, where these dire practices obtained. The Cyprians, the Rhodians, the Phoceans the Ionians, those of Chios, Lesbos, Tenedos, all had human sacrifices. The natives of the Tauric Chersonesus offered up to Diana every stranger whom chance threw upon their coast. Hence arose that just expostulation in Euripides upon the inconsistency of the proceeding; wherein much good reasoning is implied. Iphigenia wonders, as the goddess delighted in the blood of men, that every villain and murderer should be privileged to escape, nay, be driven from the threshold of the temple; whereas, if an honest and virtuous man chanced to stray thither, he only was seized upon, and put to death. The Pelasgi, in a time of scarcity, vowed the tenth of all that should be born to them for a sacrifice, in order to procure plenty. Aristomenes the Messenian slew 300 noble Lacedemonians, among whom was Theopompus the king of Sparta, at the altar of Jupiter at Ithome. Without doubt the Lacedemonians did not fail to make ample returns; for they were a severe and revengeful people, and offered the like victims to Mars. Their festival of the Diamastigosis is well known; when the Spartan boys were whipped in the sight of their parents with such severity before the altar of Diana Orthia, that they often expired under the torture. Phylarchus affirms, as he is quoted by Porphyry, that of old every Grecian state made it a rule, before they marched towards an enemy, to solicit a blessing on their undertakings by human victims.

The Romans were accustomed to the like sacrifices. They both devoted themselves to the infernal gods, and constrained others to submit to the same horrid doom. Hence we read in Titus Livius, that, in the consulate of Æmilius Paulus and Terentius Varro, two Gauls, a man and a woman, and two in like manner of Greece, were buried alive at Rome in the Ox-market, where was a place under ground, walled round, to receive them; which had before been made use of for such cruel purposes. He says it was a sacrifice not properly Roman, that is, not originally of Roman institution; yet it was frequently practised there, and that too by public authority. Plutarch makes mention of a like instance a few years before, in the consulship of Flaminius and Furius. There is reason to think, that all the principal captives who graced the triumphs of the Romans, were at the close of that cruel pageantry put to death at the altar of Jupiter Capitolinus. Caius Marius offered up his own daughter for a victim to the Dii Averrunci, to procure success in a battle against the Cimbri; as we are informed by Dorotheus, quoted by Clemens. It is likewise attested by Plutarch, who says that her name was *Calpurnia*. Marius was a man of a sour and bloody disposition; and had probably heard of such sacrifices being offered in the enemy's camp, among whom they were very common, or he might have beheld them exhibited at a distance; and therefore murdered what was nearest, and should have been dearest to him, to counteract their fearful spells, and outdo them in their wicked machinery. Cicero, making mention of this custom being common in Gaul, adds, that it prevailed among that people even at the

time he was ſpeaking: from whence we may be led to infer, that it was then diſcontinued among the Romans. And we are told by Pliny, that it had then, and not very long, been diſcouraged. For there was a law enacted, when Lentulus and Craſſus were conſuls, ſo late as the 657th year of Rome, that there ſhould be no more human ſacrifices: for till that time thoſe horrid rites had been celebrated in broad day without any maſk or controul; which, had we not the beſt evidence for the fact, would appear ſcarce credible. And however they may have been diſcontinued for a time, we find that they were again renewed; tho' they became not ſo public, nor ſo general. For not very long after this, it is reported of Auguſtus Cæſar, when Peruſia ſurrendered in the time of the ſecond triumvirate, that beſides multitudes executed in a military manner, he offered up, upon the Ides of March, 300 choſen perſons, both of the equeſtrian and ſenatorial order, at an altar dedicated to the manes of his uncle Julius. Even at Rome itſelf this cuſtom was revived: and Porphyry aſſures us, that in his time a man was every year ſacrificed at the ſhrine of Jupiter Latialis. Heliogabalus offered the like victims to the Syrian deity which he introduced among the Romans. The ſame is ſaid of Aurelian.

The Gauls and the Germans were ſo devoted to this ſhocking cuſtom, that no buſineſs of any moment was tranſacted among them without being prefaced with the blood of men. They were offered up to various gods; but particularly to Heſus, Taranis, and Thautates. Theſe deities are mentioned by Lucan, where he enumerates the various nations who followed the fortunes of Cæſar.

The altars of theſe gods were far removed from the common reſort of men; being generally ſituated in the depth of woods, that the gloom might add to the horror of the operation, and give a reverence to the place and proceeding. The perſons devoted were led thither by the Druids, who preſided at the ſolemnity, and performed the cruel offices of the ſacrifice. Tacitus takes notice of the cruelty of the Hermunduri, in a war with the Catti, wherein they had greatly the advantage; at the cloſe of which they made one general ſacrifice of all that was taken in battle. The poor remains of the legions under Varus ſuffered in ſome degree the ſame fate. There were many places deſtined for this purpoſe all over Gaul and Germany; but eſpecially in the mighty woods of Arduenna, and the great Hercynian foreſt; a wild that extended above 30 days journey in length. The places ſet apart for this ſolemnity were held in the utmoſt reverence, and only approached at particular ſeaſons. Lucan mentions a grove of this ſort near Maſſilia, which even the Roman ſoldiers were afraid to violate, though commanded by Cæſar. It was one of thoſe ſet apart for the ſacrifices of the country.

Claudian compliments Stilicho, that, among other advantages accruing to the Roman armies through his conduct, they could now venture into the awful foreſt of Hercynia, and follow the chace in thoſe ſo much dreaded woods, and otherwiſe make uſe of them.

Theſe practices prevailed among all the people of the north, of whatever denomination. The Maſſagetæ, the Scythians, the Getes, the Sarmatians, all the various nations upon the Baltic, particularly the Suevi and Scandinavians, held it as a fixed principle, that their happineſs and ſecurity could not be obtained but at the expence of the lives of others. Their chief gods were Thor and Woden, whom they thought they could never ſufficiently glut with blood. They had many very celebrated places of worſhip; eſpecially in the iſland Rugen, near the mouth of the Oder; and in Zeeland: ſome, too, very famous among the Semnones and Naharvalli. But the moſt reverenced of all, and the moſt frequented, was at Upſal; where there was every year a grand celebrity, which continued for nine days. During this term they ſacrificed animals of all ſorts: but the moſt acceptable victims, and the moſt numerous, were men. Of theſe ſacrifices none were eſteemed ſo auſpicious and ſalutary as a ſacrifice of the prince of the country. When the lot fell for the king to die, it was received with univerſal acclamations and every expreſſion of joy; as it once happened in the time of a famine, when they caſt lots, and it fell to king Domalder to be the people's victim: and he was accordingly put to death. Olaus Tretelger, another prince, was burnt alive to Woden. They did not ſpare their own children. Harald the ſon of Gunild, the firſt of that name, ſlew two of his children to obtain a ſtorm of wind. "He did not let (ſays Verſtegan) to ſacrifice two of his ſons unto his idols, to the end he might obtain of them ſuch a tempeſt at ſea, as ſhould break and diſperſe the ſhipping of Harald king of Denmark." Saxo Grammaticus mentions a like fact. He calls the king Haquin; and ſpeaks of the perſons put to death as two very hopeful young princes. Another king ſlew nine ſons to prolong his own life; in hopes, perhaps, that what they were abridged of would in great meaſure be added to himſelf. Such inſtances, however, occur not often: but the common victims were without end. Adam Bremenſis, ſpeaking of the awful grove at Upſal, where theſe horrid rites were celebrated, ſays, that there was not a ſingle tree but what was reverenced, as if it were gifted with ſome portion of divinity: and all this becauſe they were ſtained with gore and foul with human putrefaction. The ſame is obſerved by Scheiffer in his account of this place.

The manner in which the victims were ſlaughtered, was diverſe in different places. Some of the Gauliſh nations chined them with a ſtroke of an ax. The Celtæ placed the man who was to be offered for a ſacrifice upon a block, or an altar, with his breaſt upwards, and with a ſword ſtruck him forcibly acroſs the ſternum; then tumbling him to the ground, from his agonies and convulſions, as well as from the effuſion of blood, they formed a judgment of future events. The Cimbri ripped open the bowels; and from them they pretended to divine. In Norway they beat men's brains out with an ox-yoke. The ſame operation was performed in Iceland, by daſhing them againſt an altar of ſtone. In many places they tranſfixed them with arrows. After they were dead, they ſuſpended them upon the trees, and left them to putrefy. One of the writers above quoted mentions, that in his time 70 carcaſes of this ſort were found in a wood of the Sueri. Dithmar of Merſburgh, an author of nearly the ſame age, ſpeaks of a place called *Lethra* in Zeeland, where there were every year 99 perſons ſacrificed to the god Swantowite. During theſe bloody festivals a general joy

Sacrifice. joy prevailed, and banquets were moſt royally ſerved. They fed, carouſed, and gave a looſe to indulgence, which at other times was not permitted. They imagined that there was ſomething myſterious in the number nine: for which reaſon theſe feaſts were in ſome places celebrated every ninth year, in others every ninth month; and continued for nine days. When all was ended, they waſhed the image of the deity in a pool; and then diſmiſſed the aſſembly. Their ſervants were numerous, who attended during the term of their feaſting, and partook of the banquet. At the cloſe of all, they were ſmothered in the ſame pool, or otherwiſe made away with. On which Tacitus remarks, how great an awe this circumſtance muſt neceſſarily infuſe into thoſe who were not admitted to theſe myſteries.

Theſe accounts are handed down from a variety of authors in different ages; many of whom were natives of the countries which they deſcribe, and to which they ſeem ſtrongly attached. They would not therefore have brought ſo foul an imputation on the part of the world in favour of which they were each writing, nor could there be that concurrence of teſtimony, were not the hiſtory in general true.

The like cuſtom prevailed to a great degree at Mexico, and even under the mild government of the Peruvians; and in moſt parts of America. In Africa it is ſtill kept up; where, in the inland parts, they ſacrifice ſome of the captives taken in war to their fetiches, in order to ſecure their favour. Snelgrave was in the king of Dahoome's camp, after his inroad into the countries of Ardra and Whidaw; and ſays, that he was a witneſs to the cruelty of this prince, whom he ſaw ſacrifice multitudes to the deity of his nation.

The ſame abominable worſhip is likewiſe practiſed occaſionally in the iſlands viſited by Captain Cook, and other circumnavigators, in the South Sea. It ſeems indeed to have prevailed in every country at one period of the progreſs of civilization, and undoubtedly had the origin which we have aſſigned to it.

The ſacrifices of which we have been treating, if we except ſome few inſtances, conſiſted of perſons doomed by the chance of war, or aſſigned by lot, to be offered. But among the nations of Canaan, the victims were peculiarly choſen. Their own children, and whatever was neareſt and deareſt to them, were deemed the moſt worthy offering to their god. The Carthaginians, who were a colony from Tyre, carried with them the religion of their mother-country, and inſtituted the ſame worſhip in the parts where they ſettled. It conſiſted in the adoration of ſeveral deities, but particularly of Kronus; to whom they offered human ſacrifices, and eſpecially the blood of children. If the parents were not at hand to make an immediate offer, the magiſtrates did not fail to make choice of what was moſt fair and promiſing, that the god might not be defrauded of his dues. Upon a check being received in Sicily, and ſome other alarming circumſtances happening, Hamilcar without any heſitation laid hold of a boy, and offered him on the ſpot to Kronus; and at the ſame time drowned a number of prieſts, to appeaſe the deity of the ſea. The Carthaginians another time, upon a great defeat of their army by Agathocles, imputed their miſcarriages to the anger of this god, whoſe ſervices had been neglected. Touched with this, and ſeeing the enemy at their gates, they ſeized at once 300 children of the prime nobility, and offered them in public for a ſacrifice. Three hundred more, being perſons who were ſomehow obnoxious, yielded themſelves voluntarily, and were put to death with the others. The neglect of which they accuſed themſelves, conſiſted in ſacrificing children purchaſed of parents among the poorer ſort, who reared them for that purpoſe, and not ſelecting the moſt promiſing, and the moſt honourable, as had been the cuſtom of old. In ſhort, there were particular children brought up for the altar, as ſheep are fattened for the ſhambles; and they were bought and butchered in the ſame manner. But this indiſcriminate way of proceeding was thought to have given offence. It is remarkable, that the Egyptians looked out for the moſt ſpecious and handſome perſon to be ſacrificed. The Albanians pitched upon the beſt man of the community, and made him pay for the wickedneſs of the reſt. The Carthaginians choſe what they thought the moſt excellent, and at the ſame time the moſt dear to them; which made the lot fall heavy upon their children. This is taken notice of by Silius Italicus in his fourth book.

Kronus, to whom theſe ſacrifices were exhibited, was an oriental deity, the god of light and fire; and therefore always worſhipped with ſome reference to that element. See PHOENICIA.

The Greeks, we find, called the deity to whom theſe offerings were made *Agraulos*; and feigned that ſhe was a woman, and the daughter of Cecrops. But how came Cecrops to have any connection with Cyprus? Agraulos is a corruption and tranſpoſition of the original name, which ſhould have been rendered *Uk El Aur*, or *Uk El Aurus*; but has, like many other oriental titles and names, been ſtrangely ſophiſticated, and is here changed to Agraulos. It was in reality the god of light, who was always worſhipped with fire. This deity was the Moloch of the Tyrians and Canaanites, and the Melech of the eaſt; that is, the great and principal god, the god of light, of whom fire was eſteemed a ſymbol; and at whoſe ſhrine, inſtead of viler victims, they offered the blood of men.

Such was the Kronus of the Greeks, and the Moloch of the Phœnicians: and nothing can appear more ſhocking than the ſacrifices of the Tyrians and Carthaginians, which they performed to this idol. In all emergencies of ſtate, and times of general calamity, they devoted what was moſt neceſſary and valuable to them for an offering to the gods, and particularly to Moloch. But beſides theſe undetermined times of bloodſhed, they had particular and preſcribed ſeaſons every year, when children were choſen out of the moſt noble and reputable families, as before mentioned. If a perſon had an only child, it was the more liable to be put to death, as being eſteemed more acceptable to the deity, and more efficacious for the general good. Thoſe who were ſacrificed to Kronus were thrown into the arms of a molten idol, which ſtood in the midſt of a large fire, and was red with heat. The arms of it were ſtretched out, with the hands turned upwards, as it were to receive them; yet ſloping downwards, ſo that they dropt from thence into a glowing furnace below. To other gods they were otherwiſe ſlaughtered, and, as it is implied, by the very hands of their parents. What can be more horrid

horrid to the imagination, than to suppose a father leading the dearest of all his sons to such an infernal shrine? or a mother the most engaging and affectionate of her daughters, just rising to maturity, to be slaughtered at the altar of Ashtaroth or Baal? Justin describes this unnatural custom very pathetically: *Quippe homines, ut victimas, immolabant: et impuberes (quæ ætas hostium misericordiam provocat) aris admovebant; pacem sanguine eorum exposcentes, pro quorum vitâ Dii rogari maxime solent.* Such was their blind zeal, that this was continually practised; and so much of natural affection still left unextinguished, as to render the scene ten times more shocking from the tenderness which they seemed to express. They embraced their children with great fondness, and encouraged them in the gentlest terms, that they might not be appalled at the sight of the hellish process; begging of them to submit with cheerfulness to this fearful operation. If there was any appearance of a tear rising, or a cry unawares escaping, the mother smothered it with her kisses, that there might not be any show of backwardness or constraint, but the whole be a free-will offering. These cruel endearments over, they stabbed them to the heart, or otherwise opened the sluices of life; and with the blood warm, as it ran, besmeared the altar and the grim visage of the idol. These were the customs which the Israelites learned of the people of Canaan, and for which they are upbraided by the Psalmist: "They did not destroy the nations, concerning whom the Lord commanded them; but were mingled among the heathen, and learned their works: yea, they sacrificed their sons and their daughters unto devils, and shed innocent blood, even the blood of their sons and of their daughters, whom they sacrificed unto the idols of Canaan; and the land was polluted with blood. Thus were they defiled with their own works, and went a-whoring with their own inventions."

These cruel rites, practised in so many nations, made Plutarch debate with himself, "Whether it would not have been better for the Galatæ, or for the Scythians, to have had no tradition or conception of any superior beings, than to have formed to themselves notions of gods who delighted in the blood of men; of gods, who esteemed human victims the most acceptable and perfect sacrifice? Would it not (says he) have been more eligible for the Carthaginians to have had the atheist Critias, or Diagoras, their lawgiver, at the commencement of their polity, and to have been taught, that there was neither god nor demon, than to have sacrificed, in the manner they were wont, to the god which they adored? Wherein they acted, not as the person did whom Empedocles describes in some poetry, where he exposes this unnatural custom. The sire there with many idle vows offers up unwittingly his son for a sacrifice; but the youth was so changed in feature and figure, that his father did not know him. These people used, knowingly and wilfully, to go through this bloody work, and slaughter their own offspring. Even they who were childless would not be exempted from this cursed tribute; but purchased children, at a price, of the poorer sort, and put them to death with as little remorse as one would kill a lamb or a chicken. The mother, who sacrificed her child, stood by, without any seeming sense of what she was losing, and without uttering a groan. If a sigh did by chance escape, she lost all the honour which she proposed to herself in the offering, and the child was notwithstanding slain. All the time of this ceremony, while the children were murdering, there was a noise of clarions and tabors sounding before the idol, that the cries and shrieks of the victims might not be heard. "Tell me now (says Plutarch) if the monsters of old, the Typhons, and the giants, were to expel the gods, and to rule the world in their stead; could they require a service more horrid than these infernal rites and sacrifices?"

SACRILEGE, SACRILEGIUM, the crime of profaning sacred things, or things devoted to God; or of alienating to laymen, or common purposes, what was given to religious persons and pious uses.

SACRISTAN, a church-officer, otherwise called SEXTON.

SACRISTY, in church-history, an apartment in a church where the sacred utensils were kept, being the same with our VESTRY.

SADDLE, is a seat upon a horse's back, contrived for the conveniency of the rider.

A hunting-saddle is composed of two bows, two bands, fore-bolsters, pannels, and saddle-straps; and the great saddle has, besides these parts, corks, hind-bolsters, and a trousseqin.

The pommel is common to both.

SADDUCEES, were a famous sect among the ancient Jews, and consisted of persons of great quality and opulence. Respecting their origin there are various accounts and various opinions. Epiphanius, and after him many other writers, contend, that they took their rise from Dositheus a sectary of Samaria, and their name from the Hebrew word צדק *just* or *justice*, from the great justice and equity which they showed in all their actions; a derivation which neither suits the word *Sadducee* nor the general character of the sect. They are thought by some too to have been Samaritans; but this is by no means probable, as they always attended the worship and sacrifices at Jerusalem and never at Gerizzim.

In the Jewish Talmud we are told that the Sadducees derived their name from *Sadoc*, and that the sect arose about 260 years before Christ, in the time of Antigonus of Socho, president of the Sanhedrim at Jerusalem, and teacher of the law in the principal divinity school of that city. He had often in his lectures, it seems, taught his scholars, that they ought not to serve God as slaves do their masters, from the hopes of a reward, but merely out of filial love for his own sake; from which Sadoc and Baithus inferred that there were no rewards at all after this life. They therefore separated from their master, and taught that there was no resurrection nor future state. This new doctrine quickly spread, and gave rise to the sect of Sadducees, which in many respects resembled the EPICUREANS.

Dr Prideaux thinks, that the Sadducees were at first no more than what the Caraites are now; that is, they would not receive the traditions of the elders, but stuck to the written word only; and the Pharisees being great promoters of those traditions, hence these two sects became directly opposite to each other. See *Prideaux's Conn.* part. ii. b. 2 and 3. and see also PHARISEES and CARAITES.

Afterwards the Sadducees imbibed other doctrines, which

Sadducees. which rendered them a sect truly impious; for they denied the resurrection of the dead, and the existence of angels, and of the spirits or souls of men departed (Mat. xxii. 23. Acts xxiii. 8.) They held, that there is no spiritual being but God only; that as to man, this world is his all. They did not deny but that we had reasonable souls: but they maintained this soul was mortal; and, by a necessary consequence, they denied the rewards and punishments of another life. They pretended also, that what is said of the existence of angels, and of a future resurrection, are nothing but illusions. St Epiphanius, and after him St Austin, have advanced, that the Sadducees denied the Holy Ghost. But neither Josephus nor the evangelists accuse them of any error like this. It has been also imputed to them, that they thought God corporeal, and that they received none of the prophecies.

It is pretty difficult to apprehend how they could deny the being of angels, and yet receive the books of Moses, where such frequent mention is made of angels and of their appearances. Grotius and M. Le Clerc observe, that it is very likely they looked upon angels, not as particular beings, subsisting of themselves, but as powers, emanations, or qualities, inseparable from the Deity, as the sun-beams are inseparable from the sun. Or perhaps they held angels not to be spiritual but mortal; just as they thought that substance to be which animates us and thinks in us. The ancients do not tell us how they solved this difficulty, that might be urged against them from so many passages of the Pentateuch, where mention is made of angels.

As the Sadducees acknowledged neither punishments nor recompenses in another life, so they were inexorable in their chastising of the wicked. They observed the law themselves, and caused it to be observed by others, with the utmost rigour. They admitted of none of the traditions, explications, or modifications, of the Pharisees; they kept only to the text of the law; and maintained, that only what was written was to be observed.

The Sadducees are accused of rejecting all the books of Scripture except those of Moses; and to support this opinion, it is observed, that our Saviour makes use of no Scripture against them, but passages taken out of the Pentateuch. But Scaliger produces good proofs to vindicate them from this reproach. He observes, that they did not appear in Israel till after the number of the holy books were fixed; and that if they had been to choose out of the canonical Scriptures, the Pentateuch was less favourable to them than any other book, since it often makes mention of angels and their apparition. Besides, the Sadducees were present in the temple and at other religious assemblies, where the books of the prophets were read indifferently as well as those of Moses. They were in the chief employs of the nation, many of them were even priests. Would the Jews have suffered in these employments persons that rejected the greatest part of their Scriptures? Menasse-ben-Israel says expressly, that indeed they did not reject the prophets, but that they explained them in a sense very different from that of the other Jews.

Josephus assures us, that they denied destiny or fate; alleging, that these were only sounds void of sense, and that all the good or evil that happens to us is in consequence of the good or evil side we have taken, by the free choice of our will. They said also, that God was far removed from doing or knowing evil, and that man was the absolute master of his own actions. This was roundly to deny a providence; and upon this footing I know not, says F. Calmet, what could be the religion of the Sadducees, or what influence they could ascribe to God in things here below. However, it is certain they were not only tolerated among the Jews, but that they were admitted to the high-priesthood itself. John Hircanus, high-priest of that nation, separated himself in a signal manner from the sect of the Pharisees, and went over to that of Sadoc. It is said also, he gave strict command to all the Jews, on pain of death, to receive the maxims of this sect. Aristobulus and Alexander Jannæus, son of Hircanus, continued to favour the Sadducees; and Maimonides assures us, that under the reign of Alexander Jannæus, they had in possession all the offices of the Sanhedrim, and that there only remained of the party of the Pharisees, Simon the son of Secra. Caiaphas, who condemned Jesus Christ to death, was a Sadducee (Acts, v. 17. iv. 1.); as also Ananus the younger, who put to death St James the brother of our Lord. At this day, the Jews hold as heretics that small number of Sadducees that are to be found among them. See upon this matter *Serrar. Tribæres. Menasse ben-Israel, de Resurrectione mortuorum; Basnage's History of the Jews*, &c.; and *Calmet's Dissertation upon the Sects of the Jews* before *the Commentary of St Mark.*

The sect of the Sadducees was much reduced by the destruction of Jerusalem, and by the dispersion of the Jews; but it revived afterwards. At the beginning of the third century it was so formidable in Egypt, that Ammonim, Origen's master, when he saw them propagate their opinions in that country, thought himself obliged to write against them, or rather against the Jews, who tolerated the Sadducees, though they denied the fundamental points of their religion. The emperor Justinian mentions the Sadducees in one of his novels, banishes them out of all the places of his dominions, and condemns them to the severest punishments, as people that maintained atheistical and impious tenets; denying the resurrection and the last judgment. Annus, or Ananus, a disciple of Juda, son of Nachman, a famous rabbin of the 8th century, declared himself, as it is said, in favour of the Sadducees, and strenuously protected them against their adversaries. They had also a celebrated defender in the 12th century, in the person of Alpharag a Spanish rabbin. This doctor wrote against the Pharisees, the declared enemies of the Sadducees; and maintained by his public writings, that the purity of Judaism was only to be found among the Sadducees; that the traditions avowed by the Pharisees were useless; and that the ceremonies, which they had multiplied without end, were an insupportable yoke. The rabbi Abraham-ben-David Italleri replied to Alpharag, and supported the sect of the Pharisees by two great arguments, that of their universality and that of their antiquity. He proved their antiquity by a continued succession from Adam down to the year 1167; and their universality, because the Pharisees are spread all the world over, and are found in all the synagogues. There are still Sadducees in Africa and in several other places. They deny the immortality of the soul, and the

the resurrection of the body; but they are rarely found, at least there are but few who declare themselves for these opinions.

SADLER (John), was descended from an ancient family in Shropshire; born in 1615; and educated at Cambridge, where he became eminent for his great knowledge in the oriental languages. He removed to Lincoln's-Inn, where he made no small progress in the study of the law; and in 1644 was admitted one of the masters in chancery, as also one of the two masters of requests. In 1649 he was chosen town-clerk of London, and the same year published his *Rights of the Kingdom*. He was greatly esteemed by Oliver Cromwell, by whose special warrant he was continued a master in Chancery, when their number was reduced to six. By his interest it was that the Jews obtained the privilege of building for themselves a synagogue in London. In 1658 he was made member of parliament for Yarmouth; and next year was appointed first commissioner under the great seal with Mr Taylor, Mr Whitelocke, and others, for the probate of wills. In 1660 he published his *Olbia*. Soon after the Restoration, he lost all his employments. In the fire of London in 1666, he was a great sufferer; which obliged him to retire to his seat of Warmwell in Dorsetshire, where he lived in a private manner till 1674, when he died.

SADOC, a famous Jewish rabbi, and founder of the sect of the SADDUCEES.

SADOLET (James), a polite and learned cardinal of the Romish church, born at Modena in 1477. Leo X. made him and Peter Bembus his secretaries, an office for which they were both well qualified; and Sadolet was soon after made bishop of Carpentras, near Avignon: he was made a cardinal in 1536 by Paul III. and employed in several negociations and embassies. He died in 1547, not without the suspicion of poison, for corresponding too familiarly with the Protestants, and for testifying too much regard for some of their doctors. His works, which are all in Latin, were collected in 1607 at Mentz, in one volume 8vo. All his contemporaries spoke of him in the highest terms.

SAFE-GUARD, a protection formerly granted to a stranger who feared violence from some of the king's subjects for seeking his right by course of law.

SAFE-Conduct, is a security given by a prince under the great seal, to a stranger for his *safe-coming* into and passing out of the realm; the form whereof is in *Reg. Orig.* 25. There are letters of safe-conduct which must be enrolled in chancery; and the persons to whom granted must have them ready to show; and touching which there are several statutes. See PREROGATIVE.

SAFFRON, in the materia medica, is formed of the stigmata of the crocus officinalis *, dried on a kiln, and pressed together into cakes. Of this there are two kinds, the English and Spanish; of which the latter is by far the most esteemed. Saffron is principally cultivated in Cambridgeshire, in a circle of about ten miles diameter. The greatest part of this tract is an open level country, with few inclosures; and the custom there is, as in most other places, to crop two years, and let the land be fallow the third. Saffron is generally planted upon fallow-ground, and, all other things being alike, they prefer that which has borne barley the year before.

The saffron ground is seldom above three acres, or less than one; and in choosing, the principal thing they have regard to is, that they be well exposed, the soil not poor, nor a very stiff clay, but a temperate dry mould, such as commonly lies upon chalk, and is of an hazel colour; though, if every thing else answers, the colour of the mould is pretty much neglected.

The ground being made choice of, about Lady-day or the beginning of April, it must be carefully ploughed, the furrows being drawn much closer together, and deeper if the soil will allow it, than is done for any kind of corn; and accordingly the charge is greater.

About five weeks after, during any time in the month of May, they lay between 20 and 30 loads of dung upon each acre, and having spread it with great care, they plough it in as before. The shortest rotten dung is the best; and the farmers, who have the conveniency of making it, spare no pains to make it good, being sure of a proportionable price for it. About midsummer they plough a third time, and between every 16 feet and an half they leave a broad furrow or trench, which serves both as a boundary to the several parcels, and for throwing the weeds into at the proper season. The time of planting is commonly in the month of July. The only instrument used at this time is a small narrow spade, commonly called a *spit-shovel*. The method is this: One man with his shovel raises about three or four inches of earth, and throws it before him about six or more inches. Two persons, generally women, follow with roots, which they place in the fartherest edge of the trench made by the digger, at about three inches from each other. As soon as the digger has gone once the breadth of the ridge, he begins again at the other side; and, digging as before, covers the roots last set, which makes room for another row of roots at the same distance from the first that they are from one another. The only dexterity necessary in digging is, to leave some part of the first stratum of earth untouched, to lie under the roots; and, in setting, to place the roots directly upon their bottom. The quantity of roots planted on an acre is generally about 16 quarters, or 128 bushels. From the time of planting till the beginning of September, or sometimes later, there is no more labour required; but at that time they begin to vegetate, and are ready to show themselves above ground, which may be known by digging up a few of the roots. The ground is then to be pared with a sharp hoe, and the weeds raked into the furrows, otherwise they would hinder the growth of the saffron. In some time after, the flowers appear.

They are gathered before they are full blown, as well as after, and the proper time for it is early in the morning. The owners of the saffron-fields get together a sufficient number of hands, who pull off the whole flowers, and throw them by handfuls into a basket, and so continue till about 11 o'clock. Having then carried home the flowers, they immediately fall to picking out the stigmata or chives, and together with them a pretty large proportion of the stylus itself, or string to which they are attached: the rest of the flower they throw away as useless. Next morning they return to the field, without regarding whether the weather be wet or dry; and so on daily, even on Sundays, till the whole crop is gathered.—The next labour is to dry the chives on the kiln. The kiln is built upon a thick plank

plank, that it may be moved from place to place. It is supported by four short legs: the outside consists of eight pieces of wood of three inches thick, in form of a quadrangular frame, about 12 inches square at the bottom on the inside, and 22 on the upper part; which last is likewise the perpendicular height of it. On the foreside is left a hole of about eight inches square, and four inches above the plank, through which the fire is put in; over all the rest laths are laid pretty thick, close to one another, and nailed to the frame already mentioned. They are then plastered over on both sides, as are also the planks at bottom, very thick, to serve for an hearth. Over the mouth is laid a hair-cloth, fixed to the edges of the kiln, and likewise to two rollers or moveable pieces of wood, which are turned by wedges or screws, in order to stretch the cloth. Instead of the hair-cloth, some people use a net-work or iron-wire, by which the saffron is sooner dried, and with less fuel; but the difficulty of preserving it from burning makes the hair-cloth preferred by the best judges. The kiln is placed in a light part of the house; and they begin with putting five or six sheets of white paper on the hair-cloth, and upon these they lay out the wet saffron two or three inches thick. It is then covered with some other sheets of paper, and over these they lay a coarse blanket five or six times doubled, or instead of this, a canvas pillow filled with straw; and after the fire has been lighted for some time, the whole is covered with a board having a considerable weight upon it. At first they apply a pretty strong heat, to make the chives *sweat* as they call it; and at this time a great deal of care is necessary to prevent burning. When it has been thus dried about an hour, they turn the cakes of saffron upside down, putting on the coverings and weight as before. If no sinister accident happens during these first two hours, the danger is thought to be over; and nothing more is requisite than to keep up a very gentle fire for 24 hours, turning the cake every half hour. That fuel is best which yields the least smoke; and for this reason charcoal is preferable to all others.

The quantity of saffron produced at a crop is uncertain. Sometimes five or six pounds of wet chives are got from one rood, sometimes not above one or two; and sometimes not so much as is sufficient to defray the expence of gathering and drying. But it is always observed, that about five pounds of wet saffron go to make one pound of dry for the first three weeks of the crop, and six pounds during the last week. When the heads are planted very thick, two pounds of dry saffron may at a medium be allowed to an acre for the first crop, and 24 pounds for the two remaining ones, the third being considerably larger than the second.

To obtain the second and third crops, the labour of hoeing, gathering, picking, &c. already mentioned, must be repeated; and about midsummer, after the third crop is gathered, the roots must all be taken up and transplanted. For taking up the roots, sometimes the plough is made use of, and sometimes a forked hoe; and then the ground is harrowed once or twice over. During all the time of ploughing, harrowing, &c. 15 or more people will find work enough to follow and gather the heads as they are turned up. The roots are next to be carried to the house in sacks, where they are cleaned and rased. This labour consists in cleaning the roots thoroughly from earth, decayed old pieces, involucra, or excrescences; after which they become fit to be planted in new ground immediately, or they may be kept for some time, without danger of spoiling. The quantity of roots taken up in proportion to those planted is uncertain; but, at a medium, 24 quarters of clean roots, fit to be planted, may be had from each acre.—There sometimes happens a remarkable change in the roots of saffron and some other plants. As soon as they begin to shoot upwards, there are commonly two or three large tap-roots sent forth from the side of the old one, which will run two or three inches deep into the ground. At the place where these bulbs first come out from, the old one will be formed sometimes, though not always, and the tap-root then decays. The bulb increases in bigness, and at last falls quite off; which commonly happens in April. But many times these tap-roots never produce any bulbs, and remain barren for ever after. All such roots therefore should be thrown away in the making a new plantation. This degeneracy of the roots is a disease for which no cure is as yet known.

When saffron is offered to sale, that kind ought to be chosen which has the broadest blades; this being the mark by which English saffron is distinguished from the foreign. It ought to be of an orange or fiery-red colour, and to yield a dark yellow tincture. It should be chosen fresh, not above a year old, in close cakes, neither dry nor yet very moist, tough and firm in tearing, of the same colour within as without, and of a strong, acrid, diffusive smell.

This drug has been reckoned a very elegant and useful aromatic. Besides the virtues it has in common with other substances of that class, it has been accounted one of the highest cordials, and is said to exhilarate the spirits to such a degree as, when taken in large doses, to occasion immoderate mirth, involuntary laughter, and the ill effects which follow from the abuse of spirituous liquors. This medicine is particularly serviceable in hysteric depressions proceeding from a cold cause or obstruction of the uterine secretions, where other aromatics, even those of the more generous kind, have little effect. Saffron imparts the whole of its virtue and colour to rectified spirit, proof-spirit, wine, vinegar, and water. A tincture drawn with vinegar loses greatly of its colour in keeping: the watery and vinous tinctures are apt to grow sour, and then lose their colour also: that made in pure spirit keeps in perfection for many years.

Meadow-Saffron. See Colchicum.

SAGAN, in scripture-history, the suffragan or deputy of the Jewish high-priest. According to some writers, he was only to officiate for him when he was rendered incapable of attending the service through sickness or legal uncleanness on the day of expiation; or, according to others, he was to assist the high-priest in the care of the affairs of the temple and the service of the priests.

SAGAPENUM, in pharmacy, &c. a gum-resin brought to us in two forms; the finer and purer is in loose granules or single drops; the coarser kind is in masses composed of these drops of various sizes, cemented together by a matter of the same kind. In either case, it is of a firm and compact substance, considerably heavy, and of a reddish colour on the outside, brownish within,

within, and ſpotted in many places with ſmall yellowiſh or whitiſh ſpecks. Its ſmell is ſtrong and diſagreeable; its taſte acrid and unpleaſant.

It is brought to us from Perſia and the Eaſt Indies. The plant which produces it has never been deſcribed; but is ſuppoſed to be, as Dioſcorides ſays, of the ferula kind, from the ſeeds and fragments of the ſtalks ſometimes met with in the body of it.

Sagapenum is a very great attenuant, aperient, and diſcutient. It is good in all diſorders of the breaſt that owe their origin to a tough phlegm. It has alſo been found to diſcuſs tumors in the nervous parts in a remarkable manner; and to give relief in habitual headachs, where almoſt all things elſe have failed. Its doſe is from ten grains to two ſcruples; but it is now ſeldom given alone. It has been found, however, to do great things in aſthmas; in obſtructions of the viſcera, particularly the ſpleen; in nervous complaints; and even in epilepſies. It alſo promotes the menſes, and expels the ſecundines; and is an ingredient in the theriaca, mithridate, and many other of the ſhop compoſitions.

SAGE, in botany. See SALVIA.

SAGE (Alain Rene), an ingenious French romance-writer, was born at Ruys in Brittany in the year 1667. He had a fine flow of imagination, was a complete maſter of the French and Spaniſh languages, and wrote ſeveral admired romances in imitation of the Spaniſh authors. Theſe were, The Bachelor of Salamanca, 2 vols 12mo; New Adventures of Don Quixote, 2 vols 12mo; The Devil on Two Sticks, 2 vols 12mo; and Gil Blas, 4 vols 12mo. He produced alſo ſome comedies, and other pieces of pleaſantry; and died in 1747, in a little houſe near Paris, where he ſupported himſelf by writing.

SAGE (the reverend John), ſo juſtly admired by all who knew him for his claſſical learning and reaſoning powers, was born, in 1652, in the pariſh of Creich and county of Fife, North Britain, where his anceſtors had lived for ſeven generations with great reſpect though with little property. His father was a captain in Lord Duffus's regiment, and fought for his king and country when Monk ſtormed Dundee on the 30th of Auguſt 1651.

The iſſue of the civil wars, and the loyalty of captain Sage, left him nothing to beſtow upon his ſon but a liberal education and his own principles of piety and virtue. In thoſe days the Latin language was taught in the parochial ſchools of Scotland with great ability and at a trifling expence; and after young Sage had acquired a competent knowledge of that language at one of thoſe uſeful ſeminaries, his father, without receiving from an ungrateful court any recompenſe for what he had loſt in the cauſe of royalty, was ſtill able to ſend him to the univerſity of St Andrew's, where having remained in college the uſual number of terms or ſeſſions, and performed the exerciſes required by the ſtatutes, he was admitted to the degree of maſter of arts, the higheſt honour which it appears he ever received from any univerſity.

During his reſidence in St Andrew's he ſtudied the Greek and Roman authors with great diligence, and was likewiſe inſtructed in logic, metaphyſics, and ſuch other branches of philoſophy as then obtained in the ſchools, which, though we affect to ſmile at them in this enlightened age, he always ſpoke of as highly uſeful to him who would underſtand the poets, hiſtorians, and orators of ancient Greece, and even the fathers of the Chriſtian church. In this opinion every man will agree with him who is at all acquainted with the ancient metaphyſics, and has read the writings of Clemens Alexandrinus, Origen, Tertullian, Chryſoſtome, and other fathers of great name; for each of those writers adopted the principles of ſome one or other of the philoſophical ſects, reaſoned from their notions, and often made uſe of their terms and phraſes.

When Mr Sage had taken his maſter's degree, the narrowneſs of his fortune compelled him to accept of the firſt literary employment which was offered to him; and that happened to be nothing better than the office of ſchoolmaſter in the pariſh of Bingry in Fifeſhire, whence he was ſoon removed to Tippermair in the county of Perth. In theſe humble ſtations, though he wanted many of the neceſſaries and almoſt all the comforts of life, he proſecuted his ſtudies with great ſucceſs; but in doing ſo, he unhappily imbibed the ſeeds of ſeveral diſeaſes which afflicted him through life, and notwithſtanding the native vigour of his conſtitution impaired his health and ſhortened his days. From the miſerable drudgery of a pariſh-ſchoolmaſter, he was relieved by Mr Drummond of Cultmalundie, who invited him to ſuperintend the education of his ſon, whom he accompanied firſt to the public ſchool of Perth, and afterwards to the univerſity of St Andrew's. This was ſtill an employment by no means adequate to his merit, but it was not wholly without advantages. At Perth he gained the friendſhip and eſteem of Dr Roſe, afterwards lord biſhop of Edinburgh, and at St Andrew's of every man capable of properly eſtimating genius and learning.

The education of his pupils was completed in 1685, when he was left with no determinate object of purſuit. In this moment of indeciſion, his friend Dr Roſe, who had been promoted from the parſonage of Perth to the profeſſorſhip of divinity in the univerſity which he was leaving, recommended him ſo effectually to his uncle then archbiſhop of Glaſgow, that he was by that prelate admitted into orders and preſented to one of the churches in the city. He was then about 34 years of age, had ſtudied the Scriptures with great aſſiduity, was no ſtranger to eccleſiaſtical hiſtory, or the apologies and other writings of the ancient fathers, was thorough maſter of ſchool-divinity, had examined with great accuracy the modern controverſies, eſpecially thoſe between the Romiſh and reformed churches, and between the Calviniſts and Remonſtrants; and it was perhaps to his honour that he did not fully approve of all the articles of faith ſubſcribed by any one of theſe contending ſects of Chriſtians.

A man ſo far advanced in life, and ſo thoroughly accompliſhed as a ſcholar, would naturally be looked up to by the greater part of the clergy as ſoon as he became one of their body. This was in fact the caſe: Mr Sage was, immediately on his admiſſion into orders, appointed clerk to the ſynod or preſbytery of Glaſgow; an office of great truſt and reſpectability, to which we know nothing ſimilar in the church of England.

During the eſtabliſhment of epiſcopacy in Scotland, from the reſtoration of Charles II. till the year 1690, the authority of the biſhops, though they poſſeſſed the

Sage. ſole power of ordination, was very limited in the government of the church. They did every thing with the conſent of the preſbyters over whom they preſided. Dioceſan ſynods were held at ſtated times for purpoſes of the ſame kind with thoſe which employ the meetings of preſbyteries at preſent (ſee PRESBYTERIANS), and the only prerogative which the biſhop ſeems to have enjoyed was to be permanent preſident, with a negative voice over the deliberations of the aſſembly. The acts of each ſynod, and ſometimes the charge delivered by the biſhop at the opening of it, were regiſtered in a book kept by the clerk, who was always one of the moſt eminent of the dioceſan clergy.

Mr Sage continued in this office, diſcharging in Glaſgow all the duties of a clergyman, in ſuch a manner as endeared him to his flock, and gained him the eſteem even of thoſe who were diſſenters from the eſtabliſhment. Many of his brethren were trimmers in eccleſiaſtical as well as in civil politics. They had been republicans and preſbyterians in the days of the covenant; and, with that ferocious zeal which too often characterizes intereſted converts, had concurred in the ſeverities which, during the reign of Charles II. were exerciſed againſt the party whom they had forſaken at his reſtoration. When that party again raiſed its head during the infatuated reign of James, and every thing indicated an approaching change of the eſtabliſhment, thoſe whoſe zeal for the church had ſo lately incited them to perſecute the diſſenters ſuddenly became all gentleneſs and condeſcenſion, and advanced towards the preſbyterians as to their old friends.

The conduct of Mr Sage was the reverſe of this. He was an epiſcopalian and a royaliſt from conviction: and in all his diſcourſes public and private he laboured to inſtil into the minds of others the principles which to himſelf appeared to have their foundation in truth. To perſecution he was at all times an enemy, whilſt he never tamely betrayed through fear what he thought it his duty to maintain. The conſequence was, that in the end of the year 1688 he was treated by the rabble, which in the weſtern counties of Scotland roſe againſt the eſtabliſhed church, with greater lenity than his more complying brethren. Whilſt they, without the ſmalleſt apprehenſion of their danger, were torn from their families by a lawleſs force, and many of them perſecuted in the cruelleſt manner, he was privately warned to withdraw from Glaſgow, and never more to return to that city. So much was conſiſtency of conduct and a ſteady adherence to principle reſpected by thoſe who ſeemed to reſpect nothing elſe.

Mr Sage retired to the metropolis, and carried with him the ſynodical book, which was afterwards demanded by the preſbytery of Glaſgow, but not recovered till about three or four years ago, that, on the death of a nephew of Dr Roſe the laſt eſtabliſhed biſhop of Edinburgh, it was found in his poſſeſſion, and reſtored to the preſbytery to which it belonged. Mr Sage had detained it and given it to his dioceſan and friend, from the fond hope that epiſcopacy would ſoon be re-eſtabliſhed in Scotland; and it was doubtleſs with a view to contribute what he could to the realiſing of that hope, that, immediately on his being obliged to leave Glaſgow, he commenced a keen polemical writer. At Edinburgh he preached a while, till refuſing to take the oaths of allegiance when required by the government, he was obliged to retire. In this extremity, he found protection in the houſe of Sir William Bruce, the ſheriff of Kinroſs, who approved his principles and admired his virtue. Returning to Edinburgh, in 1695, he was obſerved, and obliged to abſcond. Yet he returned in 1696, when his friend Sir William Bruce was impriſoned as a ſuſpected perſon. He was ſoon forced to look for refuge in the hills of Angus, under the name of Jackſon.

After a while Mr Sage found a ſafe retreat with the counteſs of Callendar, who employed him to inſtruct her family as chaplain, and her ſons as tutor. Theſe occupations did not wholly engage his active mind: for he employed his pen in defending his order, or in expoſing his oppreſſors. When the counteſs of Callendar had no longer ſons to inſtruct, Sage accepted the invitation of Sir John Steuart of Garntully, who wanted the help of a chaplain, and the converſation of a ſcholar. With Sir John he continued till the decency of his manners, and the extenſiveneſs of his learning, recommended him to a higher ſtation. And, on the 25th of January 1705, he was conſecrated a biſhop by Paterſon the archbiſhop of Glaſgow, Roſe the biſhop of Edinburgh, and Douglas the biſhop of Dumblain. But this promotion did not prevent ſickneſs from falling on him in November 1706. After lingering for many months in Scotland, he tried the effect of the waters of Bath in 1709, without ſucceſs. At Bath and at London he remained a twelvemonth, recogniſed by the great and careſſed by the learned. Yet though he was invited to ſtay, he returned in 1710 to his native country, which he deſired to ſee, and where he wiſhed to die. And though his body was debilitated, he engaged, with undiminiſhed vigour of mind, in the publication of the works of Drummond of Hawthornden, to which the celebrated Ruddiman lent his aid. Biſhop Sage died at Edinburgh on the 7th of June 1711, lamented by his friends for his virtues, and feared by his adverſaries for his talents.

His works are, 1ſt, Two Letters concerning the Perſecution of the Epiſcopal Clergy in Scotland, which with other two by different authors were printed in one volume at London in 1689. 2dly, An Account of the late Eſtabliſhment of Preſbyterian Government by the Parliament of Scotland, in 1690, London, 1693. 3dly, The Fundamental Charter of Preſbytery, London, 1695. 4thly, The Principles of the Cyprianick Age with regard to Epiſcopal Power and Juriſdiction, London, 1695. 5thly, A Vindication of the Principles of the Cyprianick Age, London, 1701. 6thly, Some Remarks on the Letter from a Gentleman in the City, to a miniſter in the Country, on Mr David Williamſon's Sermon before the General Aſſembly, Edinburgh, 1703. 7thly, A Brief Examination of ſome Things in Mr Meldrum's Sermon, preached on the 16th of May 1703, againſt a Toleration to thoſe of the Epiſcopal Perſuaſion, Edinburgh, 1703. 8thly, The Reaſonableneſs of a Toleration of thoſe of the Epiſcopal Perſuaſion inquired into purely on Church Principles, Edinburgh, 1704. 9thly, The Life of Gawin Douglas, in 1710. 10thly, An introduction to Drummond's Hiſtory of the Five James's, Edinburgh, 1711. Of the principles maintained in theſe publications, different readers will think very differently; and it is probable that the acrimony diſplayed in ſome of them will be

be generally condemned in the present day; whilst the learning and acuteness of their author will be universally acknowledged and admired by all who can distinguish merit in a friend or an adversary.

SAGENE, a Russian long measure, 500 of which make a verst: the sagene is equal to seven English feet.

SAGINA, in botany: A genus of the tetragynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 2nd order, *Caryiophyllei*. The calyx is tetraphyllous; the petals four; the capsule is unilocular, quadrivalved, and polyspermous.

SAGITTARIA, ARROW-HEAD: A genus of the polyandria order, belonging to the monœcia class of plants; and in the natural method ranking under the fifth order, *Tripetaloideæ*. The male calyx is triphyllous; the corolla tripetalous; the filaments generally about 14; the female calyx is triphyllous; the corolla tripetalous; many pistils; and many naked seeds. There are four species, of which the most remarkable is the sagittifolia, growing naturally in many parts of England. The root is composed of many strong fibres, which strike into the mud; the footstalks of the leaves are in length proportionable to the depth of the water in which they grow; so they are sometimes almost a yard long: they are thick and fungous; the leaves, which float upon the water, are shaped like the point of an arrow, the two ears at their base spreading wide asunder, and are very sharp-pointed. The flowers are produced upon long stalks which rise above the leaves, standing in whorls round them at the joints. They consist of three broad white petals, with a cluster of stamina in the middle, which have purple summits. There is always a bulb at the lower part of the root, growing in the solid earth beneath the mud. This bulb constitutes a considerable part of the food of the Chinese; and upon that account they cultivate it. Horses, goats, and swine, eat it; cows are not fond of it.

SAGITTARIUS, in astronomy, the name of one of the 12 signs of the zodiac.

SAGO, a simple brought from the East Indies, of considerable use in diet as a restorative. It is produced from a species of palm-tree (*Cycas circinalis*, L.) growing spontaneously in the East Indies without any culture. The progress of its vegetation in the early stages is very slow. At first it is a mere shrub, thick set with thorns, which makes it difficult to come near it; but as soon as its stem is once formed, it rises in a short time to the height of 30 feet, is about six feet in circumference, and imperceptibly loses its thorns. Its ligneous bark is about an inch in thickness, and covers a multitude of long fibres; which, being interwoven one with another, envelope a mass of a gummy kind of meal. As soon as this tree is ripe, a whitish dust, which transpires through the pores of the leaves, and adheres to their extremities, proclaims its maturity. The Malais then cut them down near the root, divide them into several sections, which they split into quarters: they then scoop out the mass of mealy substance, which is enveloped by and adheres to the fibres; they dilute it in pure water, and then pass it through a straining bag of fine cloth, in order to separate it from the fibres. When this paste has lost part of its moisture by evaporation, the Malais throw it into a kind of earthen vessels, of different shapes, where they allow it to dry and harden. This paste is wholesome nourishing food, and preserves for many years. The Indians eat it diluted with water, and sometimes baked or boiled. Through a principle of humanity, they reserve the finest part of this meal for the aged and infirm. A jelly is sometimes made of it, which is white and of a delicious flavour.

SAGUM, in Roman antiquity, a military habit, open from top to bottom, and usually fastened on the right shoulder with a buckle or clasp. It was not different in shape from the *chlamys* of the Greeks and the *paludamentum* of the generals. The only difference between them was, that the paludamentum was made of a richer stuff, was generally of a purple colour, and both longer and fuller than the sagum.

SAGUNTUM, an ancient town of Spain, now called *Morvedro*, where there are still the ruins of a Roman amphitheatre to be seen. The new town is seated on a river called *Morvedro*, 15 miles to the north of Valencia, in E. Long. 0. 10. N. Lat. 39. 38. It was taken by Lord Peterborough in 1706.

SAICK, or SAIQUE, a Turkish vessel, very common in the Levant for carrying merchandize.

SAIDE, the modern name of Sidon. See SIDON.

SAIL, in navigation, an assemblage of several breadths of canvas sewed together by the lists, and edged round with cord, fastened to the yards of a ship, to make it drive before the wind. See SHIP.

The edges of the cloths, or pieces, of which a sail is composed, are generally sewed together with a double seam; and the whole is skirted round at the edges with a cord, called the *bolt-rope*.

Although the form of sails is extremely different, they are all nevertheless triangular or quadrilateral figures; or, in other words, their surfaces are contained either between three or four sides.

The former of these are sometimes spread by a yard, as lateen-sails; and otherwise by a stay, as stay-sails; or by a mast, as shoulder of-mutton sails; in all which cases the foremost leech or edge is attached to the said yard, mast, or stay, throughout its whole length. The latter, or those which are four-sided, are either extended by yards, as the principal sails of a ship; or by yards and booms, as the studding-sails, drivers, ringtails, and all those sails which are set occasionally; or by gaffs and booms, as the main-sails of sloops and lugantines.

The principal sails of a ship (Plate CCCCXLIV. fig. 2.) are the courses or lower sails *a*; the top-sails *b*, which are next in order above the courses; and the topgallant sails *c*, which are expanded above the top-sails.

The courses are the main-sail, fore-sail, and mizen, main stay-sail, fore stay-sail, and mizen stay-sail, but more particularly the three first. The main-stay sail is rarely used except in small vessels.

In all quadrangular sails the upper edge is called the *head*; the sides or skirts are called *leeches*; and the bottom or lower edge is termed the *foot*. If the head is parallel to the foot, the two lower corners are denominated *clues*, and the upper corners earings.

In all triangular sails, and in those four sided sails wherein the head is not parallel to the foot, the foremost corner at the foot is called the *tack*, and the aftermost lower-corner the *clue*; the foremost perpendicular or flying edge is called the *fore-leech*, and the hindmost the *after-leech*.

The heads of all four-ſided ſails, and the fore-leeches of lateen-ſails, are attached to their reſpective yard or gaff by a number of ſmall cords called *ro-bands*; and the extremities are tied to the yard-arms, or to the peek of the gaff. by earings.

The ſtay-ſails are extended upon ſtays between the maſts, whereon they are drawn up or down occaſionally, as a curtain ſlides upon its rod, and their lower parts are ſtretched out by a tack and ſheet. The clues of a top-ſail are drawn out to the extremities of the lower yard, by two large ropes called the *top-ſail ſheets*; and the clues of the top-gallant ſails are in like manner extended upon the top-ſail yard-arms, as exhibited by fig. 2.

The ſtudding-ſails are ſet beyond the leeches or ſkirts of the main-ſail and fore-ſail, or of the top-ſails or top-gallant ſails of a ſhip. Their upper and lower edges are accordingly extended by poles run out beyond the extremities of the yards for this purpoſe. Thoſe ſails, however, are only ſet in favourable winds and moderate weather.

All ſails derive their name from the maſt, yard, or ſtay, upon which they are extended. Thus the principal ſail extended upon the main-maſt is called the *main-ſail*, *d*; the next above, which ſtands upon the main-top maſt, is termed the *main-top ſail*, *e*; and the higheſt, which is ſpread acroſs the main-top-gallant maſt, is named the *main-top-gallant ſail*, *f*.

In the ſame manner there is the fore-ſail, *g*; the fore top-ſail, *h*; and the fore-top-gallant-ſail, *i*; the mizen, *k*; the mizen top-ſail, *l*; and mizen top-gallant-ſail, *m*. Thus alſo there is the main-ſtay-ſail, *o*; main top-maſt ſtay-ſail, *p*; and main-top-gallant ſtay-ſail, *q*; with a middle ſtay-ſail which ſtands between the two laſt.

N. B. All theſe ſtay-ſails are between the main and fore-maſts.

The ſtay-ſails between the main-maſt and mizen-maſt are the mizen ſtay-ſail, *r*; and the mizen top-maſt ſtay-ſail, *s*; and ſometimes a mizen top-gallant ſtay-ſail above the latter.

The ſtay-ſails between the foremaſt and the bow-ſprit are the fore ſtay-ſail, *t*; the fore top-maſt ſtay-ſail *u*; and the jib, *x*. There is beſides two ſquare ſails extended by yards under the bow-ſprit, one of which is called the *ſprit-ſail*, *y*; and the other the *ſprit-ſail top-ſail*, *z*.

The ſtudding-ſails being extended upon the different yards of the main-maſt and fore-maſt, are likewiſe named according to their ſtations, the *lower*, *top-maſt*, or *top-gallant ſtudding ſails*.

The ropes by which the lower yards of a ſhip are hoiſted up to their proper height on the maſts, are called the *jears*. In all other ſails the ropes employed for this purpoſe are called *haliards*.

The principal ſails are then expanded by haliards, ſheets, and bowlines; except the courſes, which are always ſtretched out below by a tack and ſheet. They are drawn up together, or truſſed up, by bunt-lines, clue-lines, *d d*; leech-lines, *e e*; reef-tackles, *f f*; ſlab-line, *g*; and ſpiling-lines. As the bunt-lines and leech-lines paſs on the other ſide of the ſail, they are expreſſed by the dotted lines in the figure.

The courſes, top-ſails, and top-gallant ſails, are wheeled about the maſt, ſo as to ſuit the various directions of the wind by braces. The higher ſtudding ſails, and in general all the ſtay-ſails, are drawn down, ſo as to be furled, or taken in, by down-hauls.

Some experienced ſail-makers contend, that it would be of much advantage if many of the ſails of ſhips were made of equal magnitude; in which caſe, when neceſſity required it, they could be interchangeably uſed. For example, as the mizen top-ſail is now made nearly as large as the main top-gallant ſail, it would be eaſy to make the yards, maſts, and ſails, ſo as mutually to ſuit each other. The main and fore-top ſails differ about two feet at head and foot, and from one to three feet in depth. Theſe likewiſe could be eaſily made alike, and in ſome caſes they are ſo. The ſame may be ſaid of the main and fore top-gallant ſails, and of the mizen top-gallant ſail, and main fore-royal. The main-ſail and fore-ſail might alſo, with reſpect to their head, be made alike; but as the former has a gore at the leech, and a larger gore at the foot for clearing it of the gallows, boats, &c. which the latter has not, there might be more difficulty in arranging them. The difficulty, however, appears not to be inſurmountable. Theſe alterations, it is thought, would be extremely uſeful in the event of loſing ſails by ſtreſs of weather. Fewer ſails would be thus neceſſary, leſs room would be required to ſtow them, and there would be leſs danger of confuſion in taking them out. But perhaps the utility of theſe alterations will be more felt in the merchant-ſervice than in the navy, which latter has always a large ſtore of ſpare ſails, and ſufficient room to ſtow them in order. Thus, too, ſpare yards and maſts might be conſiderably reduced in number, and yet any caſual damages more eaſily repaired at ſea. Top-maſt ſtudding ſails are occaſionally ſubſtituted for awnings, and might, by a very little attention in planning the rigging of a ſhip, be ſo contrived as to anſwer both purpoſes. See SHIP-BUILDING.

SAIL is alſo a name applied to any veſſel beheld at a diſtance under ſail.

To ſet SAIL, is to unfurl and expand the ſails upon their reſpective yards and ſtays, in order to begin the action of ſailing.

To Make SAIL, is to ſpread an additional quantity of ſail, ſo as to increaſe the ſhip's velocity.

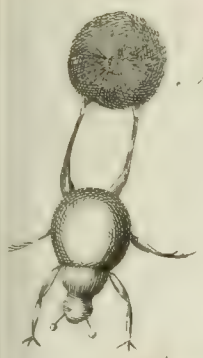
To ſhorten SAIL, is to reduce or take in part of the ſails, with an intention to diminiſh the ſhip's velocity.

To Strike SAIL, is to lower it ſuddenly. This is particularly uſed in ſaluting or doing homage to a ſuperior force, or to one whom the law of nations acknowledges as ſuperior in certain regions. Thus all foreign veſſels ſtrike to a Britiſh man of war in the Britiſh ſeas.

SAILING, the movement by which a veſſel is wafted along the ſurface of the water, by the action of the wind upon her ſails.

When a ſhip changes her ſtate of reſt into that of motion, as in advancing out of a harbour, or from her ſtation at anchor, ſhe acquires her motion very gradually, as a body which arrives not at a certain velocity till after an infinite repetition of the action of its weight.

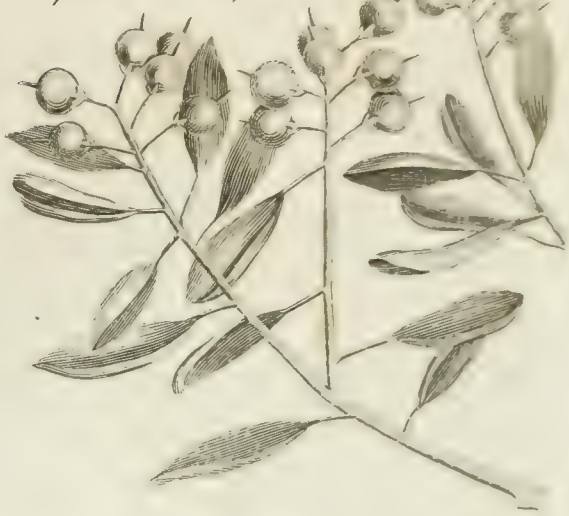
The firſt impreſſion of the wind greatly affects the velocity, becauſe the reſiſtance of the water might deſtroy it; ſince the velocity being but ſmall at firſt, the re-



Scarabæus Carnifex.

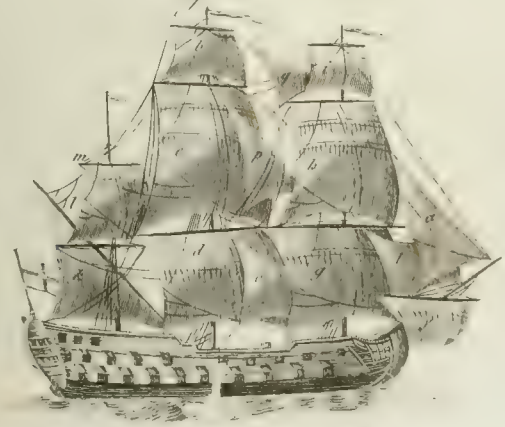
Scarabæus Hercules
or Rhinoceros Beetle.

Sapindus Saponaria.



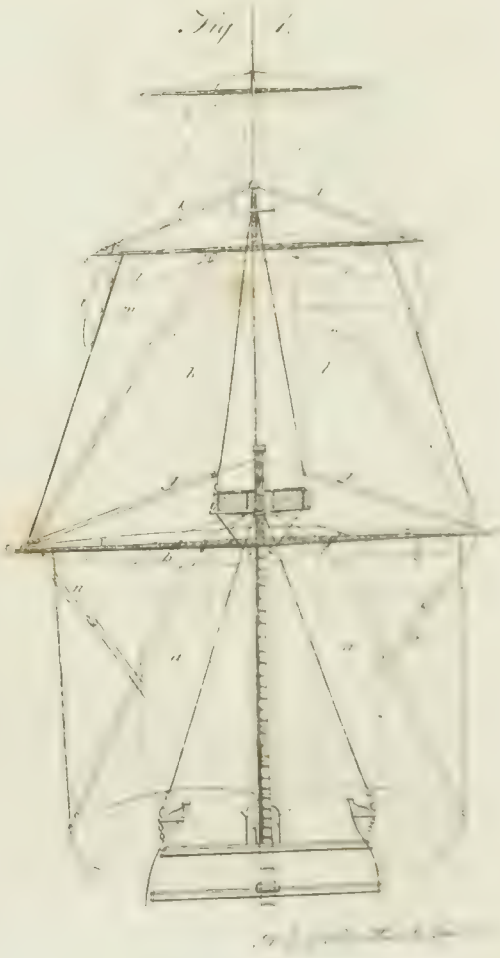
Sailing.

Fig. 2.



Sail.

Fig. 1.



resistance of the water which depends on it will be very feeble: but as the ship increases her motion, the force of the wind on the sails will be diminished; whereas, on the contrary, the resistance of the water on the bow will accumulate in proportion to the velocity with which the vessel advances. Thus the repetition of the degrees of force, which the action of the sails adds to the motion of the ship, is perpetually decreasing; whilst, on the contrary, the new degrees added to the effort of resistance on the bow are always augmenting. The velocity is then accelerated in proportion as the quantity added is greater than that which is subtracted; but when the two powers become equal; when the impression of the wind on the sails has lost so much of its force, as only to act in proportion to the opposite impulse of resistance on the bow, the ship will then acquire no additional velocity, but continue to sail with a constant uniform motion. The great weight of the ship may indeed prevent her from acquiring her greatest velocity; but when she has attained it, she will advance by her own intrinsic motion, without gaining any new degree of velocity, or lessening what she has acquired. She moves then by her own proper force *in vacuo*, without being afterwards subject either to the effort of the wind on the sails, or to the resistance of the water on the bow. If at any time the impulsion of the water on the bow should destroy any part of the velocity, the effort of the wind on the sails will revive it, so that the motion will continue the same. It must, however, be observed, that this state will only subsist when these two powers act upon each other in direct opposition; otherwise they will mutually destroy one another. The whole theory of working ships depends on this counter-action, and the perfect equality which should subsist between the effort of the wind and the impulsion of the water.

The effect of sailing is produced by a judicious arrangement of the sails to the direction of the wind. Accordingly the various modes of sailing are derived from the different degrees and situations of the wind with regard to the course of the vessel. See SEAMANSHIP.

To illustrate this observation by examples, the plan of a number of ships proceeding on various courses are represented by fig. 3. which exhibits the 32 points of the compass, of which C is the centre; the direction of the wind, which is northerly, being expressed by the arrow.

It has been observed in the article *Close-Hauled*, that a ship in that situation will sail nearly within six points of the wind. Thus the ships B and *y* are close-hauled; the former being on the larboard-tack, steering E. N. E. and the latter on the starboard tack, sailing W. N. W. with their yards *a b* braced obliquely, as suitable to that manner of sailing. The line of battle on the larboard tack would accordingly be expressed by CB, and on the starboard by C*y*.

When a ship is neither close-hauled, nor steering afore the wind, she is in general said to be sailing large. The relation of the wind to her course is precisely determined by the number of points between the latter and the course close-hauled. Thus the ships *c* and *x* have the wind one point large, the former steering E. *b* N. and the latter W. *b* N. The yards remain almost in the same position as in B and *y*; the bowlines and sheets of the sails being only a little slackened.

The ships *d* and *u* have the wind two points large, the one steering east and the other west. In this manner of sailing, however, the wind is more particularly said to be upon the beam, as being at right angles with the keel, and coinciding with the position of the ship's beams. The yards are now more across the ship, the bowlines are cast off, and the sheets more relaxed; so that the effort of the wind being applied nearer to the line of the ship's course, her velocity is greatly augmented.

In *e* and *t* the ships have the wind three points large, or one point abaft the beam, the course of the former being E. *b* S. and that of the latter W. *b* S. The sheets are still more flowing, the angle which the yards make with the keel further diminished, and the course accelerated in proportion.

The ships *f* and *f*, the first of which steers E. S. E. and the second W. S. W. have the wind four points large, or two points abaft the beam. In *g* and *r* the wind is five points large, or three points abaft the beam, the former sailing S. E. *b* E. and the latter S. W. *b* W. In both these situations the sheets are still farther slackened, and the yards laid yet more athwart the ship's length, in proportion as the wind approaches the quarter.

The ships *h* and *q*, steering S. E and S. W. have the wind six points large, or more properly on the quarter; which is considered as the most favourable manner of sailing, because all the sails co-operate to increase the ship's velocity: whereas, when the wind is right aft, as in the ship *m*, it is evident that the wind in its passage to the foremost sails will be intercepted by those which are farther aft. When the wind is on the quarter, the fore-tack is brought to the cat-head; and the main-tack being cast off, the weather-clue of the main-sail is hoisted up to the yard, in order to let the wind pass freely to the fore-sail; and the yards are disposed so as to make an angle of about two points, or nearly 22°, with the keel.

The ships *i* and *p*, of which the former sails S.E. *b* S. and the latter S. W. *b* S. are said to have the wind three points on the larboard or starboard quarter: and those expressed by *k* and *o*, two points; as steering S.S.E. and S.S.W. in both which positions the yards make nearly an angle of 16°, or about a point and a half, with the ship's length.

When the wind is one point on the quarter, as in the ships *l* and *n*, whose courses are S. *l* E. and S. *l* W. the situation of the yards and sails is very little different from the last mentioned; the angle which they make with the keel being somewhat less than a point, and the stay-sails being rendered of very little service. The ship *m* sails right afore the wind, or with the wind right aft. In this position the yards are laid at right angles with the ship's length: the stay-sails being entirely useless, are hauled down; and the main-sail is drawn up in the brails, that the fore-sail may operate; a measure which considerably facilitates the steerage, or effort of the helm. As the wind is then intercepted by the main-top-sail and main-top-gallant-sail, in its passage to the fore-top-sail and fore-top-gallant-sail, these latter are by consequence entirely becalmed; and

might

Sailing ll Saint.

ought therefore be furled, to prevent their being fretted by flapping against the mast, but that their effort contributes greatly to prevent the ship from broaching-to, when she deviates from her course to the right or left thereof.

Thus all the different methods of sailing may be divided into four, viz. close-hauled, large, quartering, and afore the wind; all which relate to the direction of the wind with regard to the ship's course, and the arrangement of the sails.

SAILING also implies a particular mode of navigation, formed on the principles, and regulated by the laws, of trigonometry. Hence we say, Plain Sailing, Mercator's, Middle-latitude, Parallel, and Great-circle Sailing. See the article NAVIGATION.

SAIL-MAKING, the art of making sails. See SAIL and SHIP-BUILDING.

SAILOR, the same with MARINER and SEAMAN.

SAINT, means a person eminent for piety and virtue, and is generally applied by us to the apostles and other holy persons mentioned in Scripture. But the Romanists make its application much more extensive. Under the word CANONIZATION we have already said something on their practice of creating saints. Our readers, however, will not, we trust, be displeased with the following more enlarged account, which they themselves give of the matter. The canonization of saints, then, they tell us, is the enrolment of any person in the *canon* or catalogue of those who are called *saints*; or, it is a judgment and sentence of the church, by which it is declared, that a deceased person was eminent for sanctity during his lifetime, and especially towards the end of it; and that consequently he must now be in glory with God, and deserves to be honoured by the church on earth with that veneration which she is wont to pay to the blessed in heaven.

The discipline with regard to this matter has varied. It would seem that in the first ages every bishop in his own diocese was wont to declare what persons were to be honoured as saints by his people. Hence St Cyprian, about the middle of the third century, B. 3. *ep.* 6. requires that he be informed of those who should die in prison for the faith, that so he might make mention of them in the holy sacrifice with the martyrs, and might honour them afterwards on the anniversary day of their happy death. This veneration continued sometimes to be confined to one country; but sometimes it extended to distant provinces, and even became universal all over the church. It was thus that St Laurence, St Ambrose, St Augustine, St Basil, and many others, appear to have been canonized by custom and universal persuasion. In those ages none were reckoned saints but the apostles, the martyrs, and very eminent confessors, whose sanctity was notorious everywhere.

Afterwards it appears that canonizations were wont to be performed in provincial synods under the direction of the metropolitan. It was thus that St Isidore of Seville was canonized in the 7th century, by the 8th council of Toledo, 14 years after his death. This manner of canonization continued occasionally down to the 12th century. The last instance of a saint canonized in that way, is that of St Walter abbot of Pontoise, who was declared a saint by the archbishop of Rouen in the year 1153.

In the 12th century, in order to prevent mistakes in so delicate a matter, Pope Alexander III judged it proper to reserve this declaration to the holy see of Rome exclusively; and decreed that no one should for the future be honoured by the church as a saint without the express approbation of the pope.

Since that time, the canonization of saints has been carried on in the form of a process; and there is at Rome a congregation of cardinals, called the *congregation of holy rites*, who are assisted by several divines under the name of *consultors*, who examine such matters, and prepare them for the decision of his holiness. When therefore any potentate, province, city, or religious body, think fit, they apply to the pope for the canonization of any person.

The first judicial step in this business must be taken by the bishop in whose diocese the person for whom the application is made had lived and died, who by his own authority calls witnesses to attest the opinion of the holiness, the virtues, and miracles, of the person in question. When the deceased has resided in different dioceses, it may be necessary that different bishops take such depositions; the originals of which are preserved in the archives of their respective churches, and authentic copies sealed up are sent to Rome by a special messenger, where they are deposited with the congregation of rites, and where they must remain for the space of ten years without being opened. They are then opened, and maturely examined by the congregation, and with their advice the pope allows the cause to go on or not as he thinks proper. The solicitors for the canonization are then referred by his holiness to the said congregation, which, with his authority, gives a commission to one or more bishops, or other respectable persons, to examine, on the spot and in the places where the person in question has lived and died, into his character and whole behaviour. These commissioners summon witnesses, take depositions, and collect letters and other writings of the venerable man, and get all the intelligence they can concerning him, and the opinion generally entertained of him. The report of these commissioners is considered attentively and at length by the congregation, and every part of it discussed by the consultors, when the congregation determines whether or not they can permit the process to go on. If it be allowed to proceed, a cardinal, who is called *ponent*, undertakes to be the principal agent in that affair. The first question then that comes to be examined is, whether or not the person proposed for canonization can be proved to have been in an eminent degree endued with the moral virtues of prudence, justice, fortitude, and temperance; and with the theological virtues of faith, hope, and charity? All this is canvassed with great deliberation; and there is a distinguished ecclesiastic called the *promoter of the holy faith*, who is sworn to make all reasonable objections to the proofs that are adduced in favour of the canonization. If the decision be favourable, then the proofs of miracles done to show the sanctity of the person in question are permitted to be brought forward; when two miracles must be verified to the satisfaction of the congregation, both as to the reality of the facts, and as to their having been truly above the power of nature. If the decision on this comes out likewise favourable, then the whole is laid

before the pope and what divines he chooses (A). Public prayer and fasting are likewise prescribed, in order to obtain light and direction from heaven. After all this long procedure, when the pope is resolved to give his approbation, he issues a bull, first of *beatification*, by which the person is declared *blessed*, and afterwards another of *canonization*, by which the name of *saint* is given him. These bulls are published in St Peter's church with very great solemnity.

A person remarkable for holiness of life, even before he is canonized, may be venerated as such by those who are persuaded of his eminent virtue, and his prayers may be implored: but all this must rest on private opinion. After his canonization, his name is inserted in the Martyrology, or catalogue of saints, of which the respective portion is read every day in the choir at the divine office. A day is also appointed for an yearly commemoration of him. His name may be mentioned in the public church service, and his intercession with God besought. His relics may be enshrined: he may be painted with rays of glory, and altars and churches may be dedicated to God in honour of him, and in thanksgiving to the divine goodness for the blessings bestowed on him in life, and for the glory to which he is raised in heaven.

The affair of a canonization is necessarily very expensive, because so many persons must be employed about it; so many journeys must be made; so many writings for and against it must be drawn out. The expence altogether amounts to about 25,000 Roman crowns, or L. 6000 Sterling. But it is generally contrived to canonize two or three at a time, by which means the particular expence of each is very much lessened, the solemnity being common.

It often happens that the solicitors for a canonization are unsuccessful. Thus the Jesuits, even when their interest at Rome was greatest, could not obtain the canonization of Bellarmine: and it is remarkable, that the objection is said to have been, his having defended the indirect power of the pope over Christian princes even in temporals.

Several authors have written on canonization, and particularly Prosper Lambertini, afterwards pope under the name of Benedict XIV. who had held the office of *promoter of the faith* for many years. He published on it a large work in several volumes, in folio, of which there is an abridgment in French. In this learned performance there is a full history of the canonization of saints in general, and of all the particular processes of that kind that are on record: an account is given of the manner of proceeding in these extraordinary trials; and it is shown, that, besides the assistance of providence, which is implored and expected in what is so much connected with religion, all prudent human means are made use of, in order to avoid mistakes, and to obtain all the evidence of which the matter is susceptible, and which must appear more than sufficent to every impartial judge. See POPE, POPERY, &c.

SAINT-Foin, in botany, a species of the hedysarum. See HEDYSARUM; and AGRICULTURE, n° 181.

SAINT Januarius's Blood. See CHEMISTRY, n° 800.

SAINTES, an ancient and considerable town of France. It is the capital of Saintonge, and before the revolution was a bishop's see. It contained likewise several convents, a jesuits college, and an abbey remarkable for its steeple, built with small stones, which admits the light. It is seated on an eminence, 37 miles south-east of Rochelle, and 262 south south-west of Paris. W. Long. 0. 34. N. Lat. 45. 45. The castle is seated on a rock, and is reckoned impregnable.

This city was a Roman colony; and those conquerors of the earth, who polished the nations they subdued, have left behind them the traces of their magnificence. In a hollow valley between two mountains, and almost adjoining to one of the suburbs, are the ruins of an amphitheatre. Though now in the last stage of decay, its appearance is august and venerable. In some parts, scarce any of the arches are to be seen; but the east end is still in a great degree of preservation. From its situation in a valley, and from the ruins of an aqueduct which conveyed water to the town from near three leagues distance, it has been supposed that Naumachiæ were represented in it; but this amounts only to conjecture. A triumphal arch, on which is an inscription in Roman letters, merits likewise attention. It was erected to Germanicus, on the news of his death, so universally lamented throughout the empire. The river Charente surrounds this city, as the Severne does that of Shrewsbury, describing the form of a horse-shoe.

Except the remains of Roman grandeur yet visible at Saintes, the place contains very little to detain or amuse a traveller. It is built with great irregularity; the streets are narrow and winding, the houses mean, and almost all of them are some centuries old. The cathedral has been repeatedly defaced and destroyed by Normans and Huguenots, who made war alike on every monument of art or piety. One tower only escaped their rage, which is said to have been built as early as the year 800 by Charlemagne. It is of an enormous magnitude, both as to height and circumference. These circumstances have probably conduced more to its preservation during the fury of war, than any veneration for the memory of its founder, or for the sanctity of its institution.

SAINTONGE, a province of France, bounded on the east by Angoumois and Perigord, on the north by Poitou and the territory of Aunis, on the west by the ocean, and on the south by Bourdelois and Giron, about 62 miles in length and 30 in breadth. The river Charente runs through the middle of it, and renders it one of the finest and most fertile provinces in France, abounding in all sorts of corn and fruits, and they make the best salt here in Europe.

THE SAINTS, three leagues distant from Guadeloupe, are two very small islands, which, with another yet smaller, form a triangle, and have a tolerable harbour. Thirty Frenchmen were sent thither in 1648, but were soon driven away by an excessive drought, which dried up their only spring before they had time to make any reservoirs. A second attempt was made in 1652, and

(A) His holiness generally appoints three consistories: in the first of which the cardinals only assist, and give their opinion; in the second, a preacher pronounces a speech in praise of the candidate before a numerous audience; to the third, not only the cardinals, but all the bishops who are at Rome, are invited, and all of them give their vote by word of mouth.

Sakradawendra || Salamanca.

and lasting plantations were established, which now yield 50,000 weight of coffee, and 100,000 of cotton.

SAKRADAWENDRA is the name of one of the Ceylonese deities, who commands and governs all the rest, and formerly answered the prayers of his worshippers; but according to the fabulous account which is given of him, the golden chair, on which he sat, and the foot of which was made of wax, that was softened by their prayers and tears, and sunk downward, so that he could take notice of their requests and relieve them, being disposed of among the poor, they no longer derive any benefit from him, or pay him any reverence. See BUDUN.

SAL. See SALT.

SAL Alembroth. See CHEMISTRY, n° 1047.

Native SAL Ammoniac. This salt, according to Mongou, is met with in the form of an efflorescence on the surface of the earth, or adhering in powder to rocks. Sometimes, as in Persia and the country of the Kalmucks, it is found as hard as stone. It is met with of different colours, as grey, black, green, and red, in the neighbourhood of volcanoes, in the caverns or grottoes of Puzzuoli, and in the mineral lakes of Tuscany, as well as in some mountains of Tartary and Thibet. At Solfaterra, near Naples, it is found in the crevices, of a yellowish colour, like common sal-ammoniac more than once sublimed. For common sal-ammoniac, see CHEMISTRY-*Index* at *Ammoniac* and *Ammoniacal Salt.*

SAL, Fixed. See CHEMISTRY n° 1016.

SAL, Glauber's secret. See CHEMISTRY-*Index* at *Glauber.*

SAL Nitrous. See CHEMISTRY, n° 292, &c.

SAL Vegetable. See CHEMISTRY-*Index* at *Salts*, &c.

SAL Volatile. See CHEMISTRY-*Index* at *Volatile.*

SAL Digestivus, Sylvii. See CHEMISTRY, n° 379, 421, 794.

SAL Diureticus. See CHEMISTRY, n° 868.

SAL Microcosmicus. See CHEMISTRY, n° 606. and 905.

SAL Prunellæ. See CHEMISTRY, n° 744.

SAL Sedativus. See CHEMISTRY-*Index* at *Borax.*

SAL Volatile Oleosum. See CHEMISTRY, n° 1036.

SALADIN, a famous sultan of Egypt, equally renowned as a warrior and legislator. He supported himself by his valour, and the influence of his amiable character, against the united efforts of the chief Christian potentates of Europe, who carried on the most unjust wars against him, under the false appellation of *Holy Wars.* See the articles EGYPT and CROISADE.

SALAMANCA, an ancient, large, rich, and populous city of Spain, in the kingdom of Leon, situated on the river Tormes, about 75 miles west from Madrid. It is said to have been founded by Teucer the son of Telamon, who called it *Salamis* or *Salmantica*, in memory of the ancient Salamis. Here is an university, the greatest in Spain, and perhaps inferior to none in the whole world, in respect at least to its revenues, buildings, number of scholars, and masters. Here are also many grand and magnificent palaces, squares, convents, churches, colleges, chapels, and hospitals. The bishop of this country is suffragan to the archbishop of Compostella, and has a yearly revenue of 1000 ducats. A Roman way leads from hence to Merida and Seville, and there is an old Roman bridge over the river. Of the colleges in the university, four are appropriated to young men of quality; and near it is an infirmary for poor sick scholars. W. Long. 6. 10. N. Lat. 41. 0.

Salamander || de Sala

SALAMANDER, in zoology. See LACERTA.

SALAMIS, an island of the Archipelago, situated in E. Long. 34. 0. N. Lat. 37. 32.—It was famous in antiquity for a battle between the Greek and Persian fleets. In the council of war held among the Persians on this occasion, all the commanders were for engaging, because they knew this advice to be most agreeable to the king's inclinations. Queen Artemisia was the only person who opposed this resolution. She was queen of Halicarnassus; and followed Xerxes in this war with five ships, the best equipped of any in the fleet, except those of the Sidonians. This princess distinguished herself on all occasions by her singular courage, and still more by her prudence and conduct. She represented, in the council of war we are speaking of, the dangerous consequences of engaging a people that were far more expert in maritime affairs than the Persians; alleging, that the loss of a battle at sea would be attended with the ruin of their army; whereas, by spinning out the war, and advancing into the heart of Greece, they would create jealousies and divisions among their enemies, who would separate from one another, in order to defend each of them their own country; and that the king might, almost without striking a blow, make himself master of Greece. This advice, though very prudent, was not followed, but an engagement unanimously resolved upon. Xerxes, in order to encourage his men by his presence, caused a throne to be erected on the top of an eminence, whence he might safely behold whatever happened; having several scribes about him, to write down the names of such as should signalize themselves against the enemy. The approach of the Persian fleet, with the news that a strong detachment from the army was marching against Cleombrotus, who defended the isthmus, struck such a terror into the Peloponnesians, that they could not by any intreaties be prevailed upon to stay any longer at Salamis. Being therefore determined to put to sea, and sail to the isthmus, Themistocles privately dispatched a trusty friend to the Persian commanders, informing them of the intended flight; and exhorting them to send part of their fleet round the island, in order to prevent their escape. The same messenger assured Xerxes, that Themistocles, who had sent him that advice, designed to join the Persians, as soon as the battle began, with all the Athenian ships. The king giving credit to all he said, immediately caused a strong squadron to sail round the island in the night in order to cut off the enemy's flight. Early next morning, as the Peloponnesians were preparing to set sail, they found themselves encompassed on all sides by the Persian fleet; and were against their will obliged to remain in the straits of Salamis and expose themselves to the same dangers with their allies. The Grecian fleet consisted of 380 sail, that of the Persians of 2000 and upwards. Themistocles avoided the engagement till a certain wind, which rose regularly every day at the same time, and which was entirely contrary to the enemy, began to blow. As soon as he found himself favoured by this wind, he gave the signal for battle. The Persians, knowing that they fought under their king's eye, advanced with great resolution; but the wind blowing directly in their faces, and the largeness and num-

number of their ships embarrassing them in a place so strait and narrow, their courage soon abated; which the Greeks observing, used such efforts, that in a short time breaking into the Persian fleet, they entirely disordered them; some flying towards Phalarus, where their army lay encamped; others saving themselves in the harbours of the neighbouring islands. The Ionians were the first that betook themselves to flight. But Queen Artemisia distinguished herself above all the rest, her ships being the last that fled: which Xerxes observing, cried out that the men behaved like women, and the women with the courage and intrepidity of men. The Athenians were so incensed against her, that they offered a reward of 10,000 drachmas to any one that should take her alive: but she, in spite of all their efforts, got clear of the ships that pursued her, and arrived safe on the coast of Asia. In this engagement, which was one of the most memorable actions we find recorded in history, the Grecians lost 40 ships; and the Persians 200, besides a great many more that were taken, with all the men and ammunition they carried.

The island of Salamis is of a very irregular shape; it was reckoned 70 or 80 stadia, *i.e.* 8 or 10 miles long, reaching westward as far as the mountains called *Kerata* or *The Horns*. Pausanias informs us, that on one side of this island stood in his time a temple of Diana, and on the other a trophy for a victory obtained by Themistocles, together with the temple of Cychreus, the site of which is now thought to be occupied by the church of St Nicholas.

The city of Salamis was demolished by the Athenians, because in the war with Cassander it surrendered to the Macedonians, from disaffection. In the second century, when it was visited by Pausanias, some ruins of the Agora or market-place remained, with a temple and image of Ajax; and not far from the port was shown a stone, on which, they related, Telamon sat to view the Salaminian ships on their departure to join the Grecian fleet at Aulis. The walls may still be traced, and it has been conjectured were about four miles in circumference. The level space within them was now covered with green corn. The port is choked with mud, and was partly dry. Among the scattered marbles are some with inscriptions. One is of great antiquity, before the introduction of the Ionic alphabet. On another, near the port, the name of Solon occurs. This renowned lawgiver was a native of Salamis, and a statue of him was erected in the market-place, with one hand covered by his vest, the modest attitude in which he was accustomed to address the people of Athens. An inscription on black marble was also copied in 1676 near the ruin of a temple, probably that of Ajax. The island of Salamis is now inhabited by a few Albanians, who till the ground. Their village is called *Ampelaki*, "the Vineyard," and is at a distance from the port, standing more inland. In the church are marble fragments and some inscriptions.

SALARY, a recompense or consideration made to a person for his pains and industry in another man's business. The word is used in the statute 23 Edw. III. cap. 1. *Salarium* at first signified the rents or profits of a sale, hall, or house (and in Gascoigne they now call the seats of the gentry *sala's*, as we do *halls*); but afterwards it was taken for any wages, stipend, or annual allowance.

SALACIA, in botany; a genus of the trigynia order, belonging to the gynandria class of plants. The calyx is quinquefid; the corolla quinquepetalous; the antheræ sitting on the top of the germ.

SALE, is the exchange of a commodity for money; barter, or permutation, is the exchange of one commodity for another. When the bargain is concluded, an obligation is contracted by the buyer to pay the value, and by the seller to deliver the commodity, at the time and place agreed on, or immediately, if no time be specified.

In this, as well as other mercantile contracts, the safety of commerce requires the utmost good faith and veracity. Therefore, although, by the laws of England, a sale, above the value of 10 l. be not binding, unless earnest be paid, or the bargain confirmed by writing, a merchant would lose all credit who refused to perform his agreement, although these legal requisites were omitted.

When a specific thing is sold, the property, even before delivery, is in some respect vested in the buyer; and if the thing perishes, the buyer must bear the loss. For example, if a horse dies before delivery, he must pay the value: but if the bargain only determines the quantity and quality of the goods, without specifying the identical articles, and the seller's warehouse, with all his goods, be burned, he is intitled to no payment. He must also bear the loss if the thing perish through his fault; or when a particular time and place of delivery is agreed on, if it perish before it be tendered, in terms of the bargain.

If a person purchase goods at a shop without agreeing for the price, he is liable for the ordinary market-price at the time of purchase.

If the buyer proves insolvent before delivery, the seller is not bound to deliver the goods without payment or security.

If the importation, or use of the commodities sold, be prohibited by law, or if the buyer knows that they were smuggled, no action lies for delivery.

The property of goods is generally presumed, in favour of commerce, to belong to the possessor, and cannot be challenged in the hands of an onerous purchaser. But to this there are some exceptions. By the Scots law, stolen goods may in all cases be reclaimed by the proprietor, and also by the English law, unless they were bought *in fair* in open market: that is, in the accustomed public places, on stated days in the country, or in a shop in London; and horses may be reclaimed, unless the sale be regularly entered by the book-keeper of the market. In all cases, if the goods be evicted by the lawful proprietor, the seller is liable to the purchaser for the value.

Actions for payment of shop-accounts, as well as other debts not constituted by writing, are limited in England to six years. The testimony of one witness is admitted; and the seller's books, although the person that kept them be dead, are good evidence for one year. In Scotland, merchants books may be proved within three years of the date of the last article, by one witness, and the creditor's books and oath in supplement. After three years, they can only be proved by the oath or writ of the debtor. A merchant's books are in all cases good evidence against him.

SALEP, in the materia medica, the dried root of a species of orchis. See ORCHIS.

Salep.

Several methods of preparing ſalep have been propoſed and practiſed. Geoffroy has delivered a very judicious proceſs for this purpoſe in the *Hiſtoire de l'Academie Royale des Sciences*, 1740; and Retmus, in the Swediſh Tranſactions 1764, has improved Geoffroy's method. But Mr Moult of Rochdale has lately favoured the public with a new manner of curing the orchis root; by which ſalep is prepared, at leaſt equal, if not ſuperior, to any brought from the Levant. The new root is to be waſhed in water; and the fine brown ſkin which covers it is to be ſeparated by means of a ſmall bruſh, or by dipping the root in hot water, and rubbing it with a coarſe linen cloth. When a ſufficient number of roots have been thus cleaned, they are to be ſpread on a tin-plate, and placed in an oven heated to the uſual degree, where they are to remain ſix or ten minutes, in which time they will have loſt their milky whiteneſs, and acquired a tranſparency like horn, without any diminution of bulk. Being arrived at this ſtate, they are to be removed, in order to dry and harden in the air, which will require ſeveral days to effect; or by uſing a very gentle heat, they may be finiſhed in a few hours.

Salep thus prepared, may be afforded in thoſe parts of England where labour bears a high value, at about eight-pence or ten-pence per pound: And it might be ſold ſtill cheaper, if the orchis were to be cured, without ſeparating from it the brown ſkin which covers it; a troubleſome part of the proceſs, and which does not contribute to render the root either more palatable or ſalutary. Whereas the foreign ſalep is now ſold at five or ſix ſhillings per pound.

Salep is ſaid to contain the greateſt quantity of vegetable nouriſhment in the ſmalleſt bulk. Hence a very judicious writer, to prevent the dreadful calamity of famine at ſea, has lately propoſed that the powder of it ſhould conſtitute part of the proviſions of every ſhip's company. This powder and portable ſoup, diſſolved in boiling water, form a rich thick jelly, capable of ſupporting life for a conſiderable length of time. An ounce of each of theſe articles, with two quarts of boiling water, will be ſufficient ſubſiſtence for a man a day; and as being a mixture of animal and vegetable food, muſt prove more nouriſhing than double the quantity of rice-cake, made by boiling rice in water: which laſt, however, ſailors are often obliged ſolely to ſubſiſt upon for ſeveral months; eſpecially in voyages to Guinea, when the bread and flour are exhauſted, and the beef and pork, having been ſalted in hot countries, are become unfit for uſe.

"But as a wholeſome nouriſhment (ſays Dr Perciva*), rice is much inferior to ſalep. I digeſted ſeveral alimentary mixtures prepared of mutton and water, beat up with bread, ſea-biſcuit, ſalep, rice-flower, ſago-powder, potato, old cheeſe, &c. in a heat equal to that of the human body. In 48 hours they had all acquired a vinous ſmell, and were in briſk fermentation, except the mixture with rice, which did not emit many air-bubbles, and was but little changed. The third day ſeveral of the mixtures were ſweet, and continued to ferment; others had loſt their inteſtine motion, and were ſour; but the one which contained the rice was become putrid. From this experiment it appears, that rice as an aliment is ſlow of fermentation, and a very weak corrector of putreſaction. It is therefore an improper diet for hoſpital-patients; but more particularly for ſailors in long voyages; becauſe it is incapable of preventing, and will not contribute much to check, the progreſs of that fatal diſeaſe, the ſea-ſcurvy. Under certain circumſtances, rice ſeems diſpoſed of itſelf, without mixture, to become putrid; for by long keeping it ſometimes acquires an offenſive fœtor. Nor can it be conſidered as a very nutritive kind of food, on account of its difficult ſolubility in the ſtomach. Experience confirms the truth of this concluſion; for it is obſerved by the planters in the Weſt Indies, that the negroes grow thin, and are leſs able to work, whilſt they ſubſiſt upon rice.

* *Eſſays Medical and Experimental.*

"Salep has the ſingular property of concealing the taſte of ſalt water; a circumſtance of the higheſt importance at ſea, when there is a ſcarcity of freſh water. I diſſolved a dram and a half of common ſalt in a pint of the mucilage of ſalep, ſo liquid as to be potable, and the ſame quantity in a pint of ſpring-water. The ſalep was by no means diſagreeable to the taſte, but the water was rendered extremely unpalatable. This experiment ſuggeſted to me the trial of the orchis root as a corrector of acidity, a property which would render it a very uſeful diet for children. But the ſolution of it, when mixed with vinegar, ſeemed only to dilute like an equal proportion of water, and not to cover its ſharpneſs. Salep, however, appears by my experiments to retard the acetous fermentation of milk; and conſequently would be a good lithing for milk-pottage, eſpecially in large towns, where the cattle being fed upon ſour draff muſt yield aceſcent milk.

"Salep in a certain proportion, which I have not yet been able to aſcertain, would be a very uſeful and profitable addition to bread. I directed one ounce of the powder to be diſſolved in a quart of water, and the mucilage to be mixed with a ſufficient quantity of flour, ſalt, and yeaſt. The flour amounted to two pounds, the yeaſt to two ounces, and the ſalt to 80 grains. The loaf when baked was remarkably well fermented, and weighed three pounds two ounces. Another loaf, made with the ſame quantity of flour, &c. weighed two pounds and 12 ounces; from which it appears that the ſalep, though uſed in ſo ſmall a proportion, increaſed the gravity of the loaf ſix ounces, by abſorbing and retaining more water than the flour alone was capable of. Half a pound of flour and an ounce of ſalep were mixed together, and the water added according to the uſual method of preparing bread. The loaf when baked weighed 13 ounces and an half; and would probably have been heavier if the ſalep had been previouſly diſſolved in about a pint of water. But it ſhould be remarked, that the quantity of flour uſed in this trial was not ſufficient to conceal the peculiar taſte of the ſalep.

"The reſtorative, mucilaginous, and demulcent qualities of the orchis root, render it of conſiderable uſe in various diſeaſes. In the ſea-ſcurvy it powerfully obtunds the acrimony of the fluids, and at the ſame time is eaſily aſſimilated into a mild and nutritious chyle. In diarrhœas and the dyſentery it is highly ſerviceable, by ſheathing the internal coat of the inteſtines, by abating irritation, and gently correcting putrefaction. In the ſymptomatic fever, which ariſes from the abſorption of pus from ulcers in the lungs, from wounds, or from amputation, ſalep uſed plentifully is an admirable demulcent,

cent, and well adapted to resist the dissolution of the crasis of the blood, which is so evident in these cases. And by the same mucilaginous quality, it is equally efficacious in the strangury and dysury; especially in the latter, when arising from a venereal cause, because the discharge of urine is then attended with the most exquisite pain, from the ulceration about the neck of the bladder and through the course of the urethra. I have found it also an useful aliment for patients who labour under the stone or gravel." The ancient chemists appear to have entertained a very high opinion of the orchis root, as appears from the *secreta secretorum* of Raymund Lully, a work dated 1565.

SALERNO, an ancient and considerable town of Italy, in the kingdom of Naples, and capital of the Hither Principato, with an archbishop's see, a castle, harbour, and an university chiefly for medicine. It is seated at the bottom of a bay of the same name. E. Long. 14. 43. N. Lat. 40. 45.

SALET, in war, a light covering or armour for the head, anciently worn by the light-horse, only different from the casque in that it had no crest and was little more than a bare cap.

SALIANT, in fortification, denotes projecting. There are two kinds of angles, the one saliant, which have their point outwards; the other re-entering, which have their points inwards.

SALIANT, SALIENT, or SAILLANT, in heraldry, is applied to a lion, or other beast, when its fore-legs are raised in a leaping posture.

SALIC, or SALIQUE, LAW, (*Lex Salica*), an ancient and fundamental law of the kingdom of France, usually supposed to have been made by Pharamond, or at least by Clovis; in virtue whereof males only are to inherit.

Some, as Postellus, would have it to have been called *Salic*, q. d. *Gallic*, because peculiar to the Gauls. For Montanus insists, it was because Pharamond was at first called *Salicus*. Others will have it to be so named, as having been made for the salic lands. These were noble fiefs which their first kings used to bestow on the sallians, that is, the great lords of their salle or court, without any other tenure than military service; and for this reason, such fiefs were not to descend to women, as being by nature unfit for such a tenure. Some, again, derive the origin of this word from the Salians, a tribe of Franks that settled in Gaul in the reign of Julian, who is said to have given them lands on condition of their personal service in war. He even passed the conditions into a law, which the new conquerors acquiesced in, and called it *salic*, from the name of their former countrymen.

SALICORNIA, JOINTED GLASS-WORT, or *Saltwort*: A genus of the monogynia order, belonging to the monandria class of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. The calyx is ventricose, or a little swelling out and entire; there are no petals, and but one seed. There are four species, of which the most remarkable are, 1. The fruticosa, with obtuse points, grows plentifully in most of the salt marshes which are overflowed by the tides in many parts of England. It is an annual plant, with thick, succulent, jointed stalks, which trail upon the ground. The flowers are produced at the ends of the joints toward the extremity of the branches, which are small, and scarce discernible by the naked eye. 2. The perennis, with a shrubby branching stalk, grows naturally in Sheppey island. This hath a shrubby branching stalk about six inches long; the points of the articulations are acute; the stalks branch from the bottom, and form a kind of pyramid. They are perennial, and produce their flowers in the same manner as the former.

The inhabitants near the sea-coasts where these plants grow, cut them up toward the latter end of summer, when they are fully grown; and, after having dried them in the sun, they burn them for their ashes, which are used in making of glass and soap. These herbs are by the country people called *kelp*, and promiscuously gathered for use. See the article SALSOLA; also *Dyeing of* LEATHER, p. 750, note A.

SALII, in Roman antiquity, priests of Mars, whereof there were 12, instituted by Numa, wearing painted, particoloured garments, and high bonnets; with a steel cuirasse on the breast. They were called *salii*, from *saltare* "to dance;" because, after assisting at sacrifices, they went dancing about the streets, with bucklers in their left-hand, and a rod in their right, striking musically with their rods on one another's bucklers, and singing hymns in honour of the gods.

SALINO, one of the Lipari islands, situated between Sicily and Italy, consists of two mountains both in an high state of cultivation. The one lying more towards the north than the other is rather the highest of the two, and is called *del Capo*, "the head." The other is called *della Fossa felice*, or "the happy valley." One third of the extent of these hills from the bottom to the summit is one continued orchard, consisting of vines, olive, fig, plum, apricot, and a vast diversity of other trees. The white roofs of the houses, which are everywhere interspersed amid this diversity of verdure and foliage, contribute to variegate the prospect in a very agreeable manner. The back part of almost all the houses is shaded by an arbour of vines, supported by pillars of brick, with cross poles to sustain the branches and foliage of the vines. Those arbours shelter the houses from the rays of the sun, the heat of which is quite scorching in these southern regions. The vines are extremely fruitful; the poles bending under the weight of the grapes.

The scenes in this island are more interesting to the lover of natural history than to the antiquarian. See RETICULUM.

On the south side of the island, however, there are still to be seen some fine ruins of an ancient bath, a Roman work. They consist of a wall 10 or 11 fathoms in extent, and terminating in an arch of no great height, of which only a small part now remains. The building seems to have been reduced to its present state rather by the ravages of men than the injuries of time. Almost all the houses in the island are built of materials which have belonged to ancient monuments. The ancients had, in all probability, baths of fresh as well as of salt water in this island; for whenever the present inhabitants have occasion for a spring of fresh water, they have only to dig a pit on the shore, and pure sweet water flows in great abundance.

There were formerly mines of alum here, from which the inhabitants drew a very considerable yearly revenue. But whether they are exhausted, or whatever circumstance may have caused them to be given up, they are now

Salisbury. now no longer known. The island abounds in a variety of fruits.

On the east-side it is very populous. There are two places which are both called *Lingua*, "the tongue," and which contain a good number of inhabitants; the one is near Salino, the other is distinguished by the name of *St Marina*: there are besides these two other villages. All these places together may contain about 4000 inhabitants: the circumference of the island may be about 14 miles.

SALISBURY, the capital of the county of Wiltshire in England, situated in W. Long. 1. 55. N. Lat. 51. 3. This city owed its first rise to its cathedral, which was begun in 1219, and finished in 1258. According to an estimate delivered in to Henry III. it cost forty thousand merks. It is a Gothic building, and is certainly the most elegant and regular in the kingdom. The doors and chapels are equal in number to the months, the windows to the days, and the pillars and pilasters to the hours in a year. It is built in the form of a lantern, with a spire in the middle, and nothing but buttresses and glass windows on the outside. The spire is the highest in the kingdom, being 410 feet, which is twice the height of the monument in London. The pillars and pilasters in the church are of fusile marble; the art of making which is now either entirely lost or little known. This magnificent church has lately undergone most beautiful alterations; with an addition of two fine windows, and an organ presented by the king. The roof of the chapter-house, which is 50 feet in diameter and 150 in circumference, bears all upon one slender pillar, which is such a curiosity as can hardly be matched in Europe. The turning of the western road through the city in the reign of Edward III. was a great advantage to it. The chancellorship of the most noble order of the garter, which is annexed to this see, was first conferred on bishop Richard Beauchamp. The hospital of St Michael's, near this city, was founded by one of its bishops. Dr Seth Ward, bishop of this see in the reign of Charles II. contributed greatly to the making the river Avon navigable to Christ-church in Hampshire. The same prelate, in 1683, built an hospital for the entertainment of the widows of poor clergymen. There are three other churches besides the cathedral, which is without the liberty of the city, and a greater number of boarding schools, especially for young ladies, than in any other town in England. Here is a manufacture of druggets, flannels, bonelace, and those cloths called *Salisbury whites*; in consideration of which, and its fairs, markets, assises, boarding-schools, and clergy, the city may be justly said to be in a flourishing condition. It was incorporated by Henry III. and is governed by a mayor, high-steward, recorder, deputy-recorder, 24 aldermen, and 30 assistants or common-council men. The number of souls is about 10,000. A new council chamber is just now (June 1794) building here with proper courts of justice, by the earl of Radnor; to which Mr Hussey is also a great benefactor. That quarter called the *close*, where the canons and prebendaries live, is like a fine city of itself. Here is an assembly for the ladies every Tuesday, and coaches set out from hence to London every day. In this town are several charity-schools; the expence of one of them is entirely defrayed by the bishop. The city gives title of earl to the noble family of Cecil.

Salisbury Plain, the extensive downs in Wiltshire, which are thus denominated, form in summer one of the most delightful parts of Great Britain for extent and beauty. It extends 28 miles west of Weymouth, and 25 east to Winchester; and in some places is near 40 miles in breadth. That part about Salisbury is a chalky down, and is famous for feeding numerous flocks of sheep. Considerable portions of this tract are now enclosing, the advantages of which are so great, that we hope the whole will undergo so beneficial an alteration.

SALIVA, is that fluid by which the mouth and tongue are continually moistened in their natural state; and is supplied by glands which form it, that are called *salivary glands*. This humour is thin and pellucid, incapable of being concreted by the fire, almost without taste and smell. By chewing, it is expressed from the glands which separate it from the blood, and is intimately mixed with our food, the digestion of which it greatly promotes. In hungry persons it is acrid, and copiously discharged; and in those who have fasted long it is highly acrid, penetrating, and resolvent. A too copious evacuation of it produces thirst, loss of appetite, bad digestion, and an atrophy.

SALIVATION, in medicine, a promoting of the flux of saliva, by means of medicines, mostly by mercury. The chief use of salivation is in diseases belonging to the glands and membrana adiposa, and principally in the cure of the venereal disease; though it is sometimes also used in epidemic diseases, cutaneous diseases, &c. whose crises tend that way.

SALIX, the WILLOW, in botany: A genus of the diandria order, belonging to the diœcia class of plants; and in the natural method ranking under the 50th order, *Amentaceæ*. The amentum of the male is scaly; there is no corolla; but a nectariferous glandule at the base of the flower. The female amentum is scaly; there is no corolla; the style bifid; the capsule unilocular and bivalved; the seeds pappous. The willow trees have been frequently the theme of poetical description, both in ancient and modern times. In Virgil, Horace, and in Ovid, we have many exquisite allusions to them and their several properties; and for a melancholy lover or a contemplative poet, imagination cannot paint a fitter retreat than the banks of a beautiful river, and the shade of a drooping willow. There are 31 species; of which the most remarkable are, 1. The caprea, or common sallow-tree, grows to but a moderate height, having smooth, dark-green, brittle branches; oval, waved, rough leaves, indented at top, and woolly underneath. It grows abundantly in this country, but more frequently in dry than moist situations: it is of a brittle nature, so is unfit for the basket-makers; but will serve for poles, stakes, and to lop for fire-wood; and its timber is good for many purposes. 2. The alba, white, or silver-leaved willow, grows to a great height and considerable bulk, having smooth pale-green shoots; long, spear-shaped, acuminated, sawed, silvery-white leaves, being downy on both sides, with glands below the serratures. This is the common white willow, which grows abundantly about towns and villages, and by the sides of rivers and brooks, &c. 3. The vitellina, yellow or golden willow, grows

grows but to a moderate height; having yellow, very pliant, ſhoots; oval, acute, ſerrated, very ſmooth leaves, with the ſerratures cartilaginous, and with callous punctures on the footſtalks. 4. The purpurea, purple, or red willow, grows to a large height, having long, reddiſh, very pliable ſhoots, and long ſpear-ſhaped, ſerrated, ſmooth leaves, the lower ones being oppoſite. 5. The viminalis, or oſier-willow, grows but a moderate height, having ſlender rod-like branches; very long, pliant, greeniſh ſhoots; and very long, narrow, ſpear-ſhaped, acute, almoſt entire leaves, hoary, and ſilky underneath. 6. The pentandria, pentandrous, broad-leaved, ſweet-ſcented willow, grows to ſome conſiderable ſtature, having browniſh-green branches; oblong, broad, ſerrated, ſmooth, ſweet-ſcented leaves, ſhining above; and pentandrous flowers. 7. The triandria, or triandrous willow, grows to a large ſtature, having numerous, erect, greyiſh-green branches, and pliant ſhoots; oblong, acute-pointed, ſerrated ſmooth, ſhining-green leaves, eared at the baſe; and triandrous flowers. 8. The fragilis, fragile or crack-willow, riſes to a middling ſtature, with browniſh, very fragile, or brittle branches, long, oval-lanceolate, ſawed, ſmooth leaves of a ſhining-green on both ſides, having dentated glandular foot-ſtalks. This ſort in particular being exceedingly fragile, ſo that it eaſily cracks and breaks, is unfit for culture in oſier-grounds. 9. The Babylonica, Babylonian pendulous ſalix, commonly called *weeping willow*, grows to a largiſh ſize, having numerous, long, ſlender, pendulous branches, hanging down looſely all round in a curious manner, and long, narrow, ſpear-ſhaped, ſerrated, ſmooth leaves. This curious willow is a native of the eaſt, and is retained in our hardy plantations for ornament, and exhibits a moſt agreeable variety; particularly when diſpoſed ſingly by the verges of any piece of water, or in ſpacious openings of graſs-ground.

All the ſpecies of ſalix are of the tree kind, very hardy, remarkably faſt growers, and ſeveral of them attaining a conſiderable ſtature when permitted to run up to ſtandards. They are moſtly of the aquatic tribe, being generally the moſt abundant and of moſt proſperous growth in watery ſituations: they however will grow freely almoſt anywhere, in any common ſoil and expoſure; but grow conſiderably the faſteſt and ſtrongeſt in low moiſt land, particularly in marſhy ſituations, by the verges of rivers, brooks, and other waters; likewiſe along the ſides of watery ditches, &c. which places often lying waſte, may be employed to good advantage, in plantations of willows, for different purpoſes.

SALLEE, an ancient and conſiderable town of Africa in the kingdom of Fez, with a harbour and ſeveral ports. The harbour of Sallee is one of the beſt in the country; and yet, on account of a bar that lies acroſs it, ſhips of the ſmalleſt draught are forced to unload and take out their guns before they can get into it. There are docks to build ſhips; but they are hardly ever uſed, for want of ſkill and materials. It is a large place, divided into the Old and New Towns, by the river Guero. It has long been famous for its rovers or pirates, which make prizes of all Chriſtian ſhips that come in their way, except there is a treaty to the contrary. The town of Sallee in its preſent ſtate, though large, preſents nothing worthy the obſervation of the traveller except a battery of 24 pieces of cannon fronting the ſea, and a redoubt at the entrance of the river, which is about a quarter of a mile broad, and penetrates ſeveral miles into the interior country. W. Long. 6. 30. N. Lat. 34. 0.

SALLET, or SALLAD, a diſh of eatable herbs, ordinarily accompanying roaſt meat; compoſed chiefly of crude, freſh herbage, ſeaſoned with ſalt, oil, and vinegar.

Menage derives the word from the Latin *ſalata*; of *ſal*, "ſalt;" others from *ſalacia*; Du-Cange from *ſagina*, which is uſed in Auſonius and Columella in the ſame ſenſe.

Some add muſtard, hard eggs, and ſugar; others, pepper, and other ſpices, with orange-peel, ſaffron, &c.

The principal ſallet-herbs, and thoſe which ordinarily make the baſis of our Engliſh ſallets, are lettuce, celery, endive, creſſes, radiſh, and rape; along with which, by way of furniture, or additionals, are uſed purſlane, ſpinach, ſorrel, tarragon, burnet, corn-ſallet, and chervil.

The gardeners call ſome plants *ſmall herbs* in ſallets; theſe ſhould always be cut while in the ſeed-leaf: as creſſes, muſtard, radiſh, turnep, ſpinach, and lettuce; all which are raiſed from ſeeds ſown in drills, or lines, from the middle of February to the end of March, under glaſſes or frames; and thence to the middle of May, upon natural beds, warmly expoſed; and during the ſummer heats in more ſhady places; and afterwards in September, as in March, &c.; and laſtly, in the rigour of the winter, in hot-beds. If they chance to be frozen in very froſty weather, putting them in ſpring-water two hours before they be uſed recovers them.

SALLO (Denis de), a French writer, famous for being the projector of literary journals, was born at Paris in 1626. He ſtudied the law, and was admitted a counſellor in the parliament of Paris in 1652. It was in 1664 he ſchemed the plan of the *Journal des Sçavan*; and the year following began to publiſh it under the name of Sieur de Heronville, which was that of his valet de chambre. But he played the critic ſo ſeverely, that authors, ſurpriſed at the novelty of ſuch attacks, retorted ſo powerfully, that M. de Sallo, unable to weather the ſtorm, after he had publiſhed his third Journal, declined the undertaking, and turned it over to the abbé Gallois; who, without preſuming to criticiſe, contented himſelf merely with giving titles, and making extracts. Such was the origin of literary journals, which afterwards ſprang up in other countries under different titles; and the ſucceſs of them, under judicious management, is a clear proof of their utility. M. de Sallo died in 1669.

SALLUSTIUS (Caius Criſpus), a celebrated Roman hiſtorian, was born at Amiternum, a city of Italy, in the year of Rome 669, and before Chriſt 85. His education was liberal, and he made the beſt uſe of it. His Roman Hiſtory in ſix books, from the death of Sylla to the conſpiracy of Catiline, the great work from which he chiefly derived his glory among the antients, is unfortunately loſt excepting a few fragments; but his two detached pieces of Hiſtory which happily remain entire, are ſufficient to juſtify the great encomiums he has received as a writer.—He has had the ſingular honour to be twice tranſlated by a royal hand: firſt by our Elizabeth, according to Camden; and

and ſecondly, by the preſent Infant of Spain, whoſe verſion of this elegant hiſtorian, lately printed in folio, is one of the moſt beautiful books that any country has produced ſince the invention of printing. No man has inveighed more ſharply againſt the vices of his age than this hiſtorian; yet no man had leſs pretenſions to virtue than he. His youth was ſpent in a moſt lewd and profligate manner; and his patrimony almoſt ſquandered away when he had ſcarcely taken poſſeſſion of it. Marcus Varro, a writer of undoubted credit, relates, in a fragment preſerved by Aulus Gellius, that Salluſt was actually caught in bed with Fauſta the daughter of Sylla, by Milo her huſband; who ſcourged him very ſeverely, and did not ſuffer him to depart till he had redeemed his liberty with a conſiderable ſum. A. U. C. 694, he was made queſtor, and in 702 tribune of the people; in neither of which places is he allowed to have acquitted himſelf at all to his honour. By virtue of his queſtorſhip, he obtained an admiſſion into the ſenate; but was expelled thence by the cenſors in 704, on account of his immoral and debauched way of life. In the year 705 Cæſar reſtored him to the dignity of a ſenator; and to introduce him into the houſe with a better grace, made him queſtor a ſecond time. In the adminiſtration of this office he behaved himſelf very ſcandalouſly; expoſed every thing to ſale that he could find a purchaſer for; and if we may believe the author of the invective, thought nothing wrong which he had a mind to do: *Nihil non venale habuerit, cujus aliquis emptor fuit, nihil non æquum et verum duxit, quod ipſi facere collibuiſſet.* In the year 707, when the African war was at an end, he was made prætor for his ſervices to Cæſar, and ſent to Numidia. Here he acted the ſame part as Verres had done in Sicily; outrageouſly plundered the province; and returned with ſuch immenſe riches to Rome, that he purchaſed a moſt magnificent building upon mount Quirinal, with thoſe gardens which to this day retain the name of *Salluſtian gardens*, beſides his country houſe at Tivoli. How he ſpent the remaining part of his life, we have no account from ancient writers. Euſebius tells us, that he married Terentia, the divorced wife of Cicero; and that he died at the age of 50, in the year 710, which was about four years before the battle of Actium. Of the many things which he wrote, beſide his Hiſtories of the Catilinarian and Jugurthine wars, we have ſome orations or ſpeeches, printed with his fragments.

SALLY-PORTS, in fortification, or *Poſtern-Gates*, as they are ſometimes called, are thoſe under-ground paſſages which lead from the inner works to the outward ones; ſuch as from the higher flank to the lower, or to the tenailles, or the communication from the middle of the curtain to the ravelin. When they are made for men to go through only, they are made with ſteps at the entrance and going out. They are about 6 feet wide and 8½ feet high. There is alſo a gutter or ſhore made under the ſally-ports, which are in the middle of the curtains, for the water which runs down the ſtreets to paſs into the ditch; but this can only be done when they are wet ditches. When ſally-ports ſerve to carry guns through them for the out-works, inſtead of making them with ſteps, they muſt have a gradual ſlope, and be 8 feet wide.

SALMASIUS (Claudius), a French writer of uncommon abilities and immenſe erudition, deſcended from an ancient and noble family, and born at or near Semur in 1596. His mother, who was a Proteſtant, infuſed her notions of religion into him, and he at length converted his father: he ſettled at Leyden; and in 165[illegible] paid a viſit to Chriſtina queen of Sweden, who is reported to have ſhown him extraordinary marks of regard. Upon the violent death of Charles I. of England, he was prevailed on by the royal family, then in exile, to write a defence of that king; which was anſwered by our famous Milton in 1651, in a work intitled *Defenſio pro Populo Anglicano contra Claudii Salmaſii Deſerſionem Regiam.* This book was read over all Europe; and conveyed ſuch a proof of the writer's abilities, that he was reſpected even by thoſe who hated his principles. Salmaſius died in 1653; and ſome did not ſcruple to ſay, that Milton killed him by the acuteneſs of his reply. His works are numerous, and of various kinds; but the greateſt monuments of his learning are, his *Notæ in Hiſtoriæ Auguſtæ Scriptores*, and his *Exercitationes Plinianæ in Solinum.*

SALMO, the SALMON; a genus of the order of abdominales. The head is ſmooth, and furniſhed with teeth and a tongue; the rays of the gills are from four to ten; the back-fin is fat behind; and the belly-fins have many rays. There are 29 ſpecies; of which the moſt remarkable are,

1. The ſalar, or common ſalmon, is a northern fiſh, being unknown in the Mediterranean ſea and other warm climates: it is found in France in ſome of the rivers that empty themſelves into the ocean, and north as far as Greenland; they are alſo very common in Newfoundland, and the northern parts of North America. Salmons are taken in the rivers of Kamtſchatka; but whether they are of the ſame ſpecies with the European kind, is not very certain. They are in ſeveral countries a great article of commerce, being cured different ways, by ſalting, pickling, and drying: there are ſtationary fiſheries in Iceland, Norway, and the Baltic; but we believe nowhere greater than thoſe at Colraine in Ireland; and in Great Britain at Berwick, and in ſome of the rivers of Scotland. In the Hiſtory of Cumberland, we are told that "they depoſit their ſpawn even on the upper ſide of Pooley bridge, but always in the ſtream of Eamont. At thoſe times it is not an eaſy matter to drive them away by throwing ſtones at them. They will take a bait of roe, or ſmall fiſh, while upon the rudd, or laying their ſpawn. We have never heard of a ſalmon or ſalmon ſmelt being ſeen in the lake. They go up the river Derwent in September, through the lake of Baſſenthwaite, up the river which runs through Keſwick into the vale of St John, where they depoſit their ſpawn in the ſmall ſtreams and feeders of the lake. The young ſalmon are called *ſalmon ſmelts*, and go down to the ſea with the firſt floods in May."

The ſalmon was known to the Romans, but not to the Greeks. Pliny ſpeaks of it as a fiſh found in the rivers of Aquitaine: Auſonius enumerates it among thoſe of the Moſel. The ſalmon is a fiſh that lives both in the ſalt and freſh waters; quitting the ſea at certain ſeaſons for the ſake of depoſiting its ſpawn, in ſecurity, in the gravelly beds of rivers remote from their mouths. There are ſcarce any difficulties but what they will overcome, in order to arrive at places fit for their

their purpose: they will ascend rivers hundreds of miles, force themselves against the most rapid streams, and spring with amazing agility over cataracts of several feet in height. Salmon are frequently taken in the Rhine as high up as Basil; they gain the sources of the Lapland rivers in spite of their torrent-like currents, and surpass the perpendicular falls of Leixslip, Kennerth, and Pont Aberglastyn. It may here be proper to contradict the vulgar error, of their taking their tail in their mouth when they attempt to leap; such as Mr Pennant saw, sprung up quite straight, and with a strong tremulous motion.

The salmon is a fish so generally known, that a very brief description will serve. The largest we ever heard of weighed 74 pounds. The colour of the back and sides are grey, sometimes spotted with black, sometimes plain: the covers of the gills are subject to the same variety; the belly silvery; the nose sharp-pointed; the end of the under jaw in the males often turns up in the form of a hook; sometimes this curvature is very considerable: it is said that they lose this hook when they return to the sea. The teeth are lodged in the jaws and on the tongue, and are slender, but very sharp; the tail is a little forked.

2. The trutta, or sea-trout, migrates like the true salmon up several of our rivers; spawns, and returns to the sea. That described by Mr Pennant was taken in the Tweed below Berwick, June 1769. The shape was more thick than the common trout; the weight three pounds two ounces. The irides silver; the head thick, smooth, and dusky, with a gloss of blue and green; the back of the same colour, which grows fainter towards the side-line. The back is plain, but the sides, as far as the lateral line, are marked with large distinct irregularly-shaped spots of black: the lateral line straight; the sides beneath the line, and the belly, are white. Tail broad, and even at the end. The dorsal fin had 12 rays; the pectoral 14; the ventral 9; the anal 10. The flesh when boiled is of a pale red, but well-flavoured.

3. The fario, or trout; the colours of which vary greatly in different waters, and in different seasons. Trouts differ also in size. One taken in Llynailet, Denbighshire, which is famous for an excellent kind, measured 17 inches, its depth three and three quarters, its weight one pound ten ounces; the head thick; the nose rather sharp; the upper jaw a little longer than the lower; both jaws, as well as the head, were of a pale brown, blotched with black; the teeth sharp and strong, disposed in the jaws, roof of the mouth, and tongue. The back was dusky; the sides tinged with a purplish bloom, marked with deep purple spots, mixed with black above and below the side-line, which was straight; the belly white. The first dorsal fin was spotted; the spurious fin brown, tipped with red; the pectoral, ventral, and anal fins, of a pale brown; the edges of the anal fin white; the tail very little forked when extended.—The stomachs of the common trouts are uncommonly thick and muscular. They feed on the shell-fish of lakes and rivers, as well as on small fish. They likewise take into their stomachs gravel or small stones, to assist in comminuting the testaceous parts of their food. The trouts of certain lakes in Ireland, such as those of the province of Galway and some others, are remarkable for the great thickness of their stomachs, which, from some slight resemblance to the organs of digestion in birds, have been called *gizzards*; the Irish name the species that has them *gillaroo trouts*. These stomachs are sometimes served up to table under the former appellation. Trouts are most voracious fish, and afford excellent diversion to the angler. The passion for the sport of angling is so great in the neighbourhood of London, that the liberty of fishing in some of the streams in the adjacent counties is purchased at the rate of 10 l. *per annum*. These fish shift their quarters to spawn; and, like salmon, make up towards the heads of rivers to deposit their roes. The under jaw of the trout is subject, at certain times, to the same curvature as that of the salmon.

"It is caught (say the editors of the History of Cumberland) in very great plenty at all seasons of the year; one weighing a pound and a half is an usual size, though some are caught of 4 lb. weight. Five or six ounces is a common weight; the largest are commonly the best for the table, when they cut of a deep salmon colour. In the winter months great quantities are potted along with the charre, and sent to London, &c.—The angler, on a favourable day, here enjoys his diversion in higher perfection than in most places. A trout occasionally strays out of the Eamont into the lake, and *vice versa*, out of the lake into the river. They are easily distinguished by their spots; and it is observed, that a fish taken from its usual place is not in so good a condition as one of equal length taken on its own ground; hence it is probable, that they do not emigrate, except when diseased or spawning. Geld fish (those without spawn) are the fattest and best. They have been taken out of a solid piece of ice, in which they were frozen, as it were in a case, perfectly uninjured, after an imprisonment of several hours."

4. The species, called from its colour the *white*, migrates out of the sea into the river Esk in Cumberland, from July to September. When dressed, their flesh is red, and most delicious eating. They have, on their first appearance from the salt water, the *lernæa salmonea*, or salmon louse, adhering to them. They have both milt and spawn; but no fry has as yet been observed. This is the fish called by the Scots *phinnas*. They never exceed a foot in length. The upper jaw is a little longer than the lower; in the first are two rows of teeth, in the last one: on the tongue are six teeth. The back is straight: the whole body of an elegant form: the lateral line is straight; colour, between that and the top of the back, dusky and silvery intermixed; beneath the line, of an exquisite whiteness; first dorsal fin spotted with black: tail black, and much forked.

5. The samlet is the least of the trout kind; is frequent in the Wye, in the upper part of the Severn, and the rivers that run into it, in the north of England, and in Wales. It is by several imagined to be the fry of the salmon; but Mr Pennant dissents from that opinion. See his *Brit. Zool.* III. 303.

This species has a general resemblance to the trout, therefore must be described comparatively. 1*st*, The head is proportionably narrower, and the mouth less than that of the trout. 2*dly*, Their body is deeper. 3*dly*, They seldom exceed six or seven inches in length; at most, eight and a half. 4*thly*, The pectoral fins have generally

Salmo. generally but one large black spot, though sometimes a single small one attends it; whereas the pectoral fins of the trout are more numerously marked. *5thly*, The spurious or fat fin on the back is never tipped with red; nor is the edge of the anal fin white. *6thly*, The spots on the body are fewer, and not so bright: it is also marked from the back to the sides with six or seven large bluish bars; but this is not a certain character, as the same is sometimes found in young trouts. *7thly*, The tail of the samlet is much more forked than that of the trout. These fish are very frequent in the rivers of Scotland, where they are called *parr*. They are also common in the Wye, where they are known by the name of *skirlings*, or *lasprings*.

6. The alpinus, or red charr (umbla minor, or case charr of Pennant), is an inhabitant of the lakes of the north, and of those of the mountainous parts of Europe. It affects clear and pure waters, and is very rarely known to wander into running streams, except into such whose bottom is similar to the neighbouring lake. It is found in vast abundance in the cold lakes on the summits of the Lapland Alps, and is almost the only fish that is met with in any plenty in those regions; where it would be wonderful how they subsisted, had not Providence supplied them with innumerable larvæ of the gnat kind: these are food to the fish, who in their turn are a support to the migratory Laplanders, in their summer voyages to the distant lake. In such excursions those vacant people find a luxurious and ready repast in these fish, which they dress and eat without the addition of sauces; for exercise and temperance render useless the inventions of epicurism. There are but few lakes in our island that produce this fish; and even those not in any abundance. It is found in Ullswater and Windermere in Westmoreland; in Llyn Quellyn, near the foot of Snowdon; and, before the discovery of the copper-mines, in those of Llynberris; but the mineral streams have entirely destroyed the fish in the last lakes. In Scotland it is found in Loch Inch, and other neighbouring lakes, and is said to go into the Spey to spawn.

"The largest and most beautiful we ever received (says Mr Pennant) were taken in Windermere, and were communicated by the Rev. Mr Farish of Carlisle, with an account of their natural history. He sent five specimens; two under the name of the *case charr*, male and female; another he called the *geld charr*, i. e. a charr which had not spawned the preceding season, and on that account is reckoned to be in the greatest perfection. The two others were inscribed, the *red charr*, the *silver* or *gilt charr*, the *carpio lacus benaci*, Rai Syn. *Pisc.* 66. which last are in Westmoreland distinguished by the epithet *red*, by reason of the flesh assuming a higher colour than the other when dressed.

"The umbla minor, or case charr, spawns about Michaelmas, and chiefly in the river Brathy, which uniting with another called the *Rowthay*, about a quarter of a mile above the lake, they both fall into it together. The Brathy has a black rocky bottom; the bottom of the Rowthay is a bright sand, and into this the charr are never observed to enter. Some of them, however, spawn in the lake; but always in such parts of it which are stony, and resemble the channel of the Brathy. They are supposed to be in the highest perfection about May, and continue so all the summer; yet are rarely caught after April. When they are spawning in the river they will take a bait, but at no other time; being commonly taken, as well as the other species, in what they call *breast-nets*, which are in length about 24 fathoms, and about five where broadest.—The season which the other species spawn in is from the beginning of January to the end of March. They are never known to ascend the rivers, but always in those parts of the lake which are springy, where the bottom is smooth and sandy, and the water warmest. The fishermen judge of this warmth, by observing that the water seldom freezes in the places where they spawn except in intense frosts, and then the ice is thinner than in other parts of the lake. They are taken in greatest plenty from the end of September to the end of November; at other times they are hardly to be met with. This species is much more esteemed for the table than the other, and is very delicate when potted. The length of the red charr to the division in its tail was 12 inches; its biggest circumference almost 7. The first dorsal fin was five inches and three quarters from the tip of its nose, and consisted of 12 branched rays, the first of which was short, the fifth the longest; the fat fin was very small. Each of the five fish had double nostrils, and small teeth in the jaws, roof of the mouth, and on the tongue.—The jaws of the case-charr are perfectly even; on the contrary, those of the red-charr were unequal, the upper jaw being the broadest, and the teeth hung over the lower, as might be perceived on passing the finger over them.—The geld or barren charr was rather more slender than the others, as being without spawn. The back was of a glossy dusky blue; the sides silvery, mixed with blue, spotted with pale red; the sides of the belly were of a pale red, the bottom white. The tails of each bifurcated."

7. The thymallus, or grayling, haunts clear and rapid streams, and particularly those that flow through mountainous countries. It is found in the rivers of Derbyshire; in some of those of the north; in the Tame near Ludlow; in the Lug, and other streams near Leominster; and in the river near Christchurch, Hampshire. It is also very common in Lapland: the inhabitants make use of the guts of this fish instead of rennet, to make the cheese which they get from the milk of the rein-deer. It is a voracious fish, rises freely to the fly, and will very eagerly take a bait. It is a very swift swimmer, and disappears like the transient passage of a shadow, from whence we believe it derived the name of *umbra*.

Effugiensque oculos celeri levis umbra *natatu.* Auson.
The *umbra* swift escapes the quickest eye.

Thymalus and *thymus* are names bestowed on it on account of the imaginary scent, compared by some to that of thyme; but we never could perceive any particular smell. It is a fish of an elegant form; less deep than that of a trout: the largest we ever heard of was taken near Ludlow, which was about half a yard long, and weighed four pounds six ounces; but this was a very rare instance. The irides are silvery, tinged with yellow: the teeth very minute, seated in the jaws and the roof of the mouth, but none on the tongue: the head is dusky; the covers of the gills of a glossy green: the back and sides of a fine silvery grey; but when the fish is just taken,

taken, varied ſlightly with blue and gold: the ſide-line is ſtraight: the ſcales are large, and the lower edges duſky, forming ſtraight rows from head to tail: the tail is much forked.

8. The eperlanus, or ſmelt, inhabits the ſeas of the northern parts of Europe, and probably never is found as far ſouth as the Mediterranean: the Seine is one of the French rivers which receive it; but whether it is found ſouth of that, we have not at preſent authority to ſay. If we can depend on the obſervations of navigators, who generally have too much to think of to attend to the minutiæ of natural hiſtory, theſe fiſh are taken in the Straits of Magellan, and of a moſt ſurpriſing ſize, ſome meaſuring 20 inches in length and 8 in circumference. They inhabit the ſeas that waſh theſe iſlands the whole year, and never go very remote from ſhore except when they aſcend the rivers. It is remarked in certain rivers, that they appear a long time before they ſpawn, being taken in great abundance in November, December, and January, in the Thames and Dee, but in others not till February; and in March and April they ſpawn; after which they all return to the ſalt water, and are not ſeen in the rivers till the next ſeaſon. It has been obſerved that they never come into the Merſey as long as there is any ſnow-water in the river. Theſe fiſh vary greatly in ſize; but the largeſt we ever heard of was 13 inches long, and weighed half a pound. They have a very particular ſcent, from whence is derived one of their Engliſh names, *ſmelt*, i. e. ſmell it. That of *ſparling*, which is uſed in Wales and the north of England, is taken from the French *ſperlan*. There is a wonderful diſagreement in the opinion of people in reſpect to the ſcent of this fiſh: ſome aſſert it flavours of the violet; the Germans, for a very different reaſon, diſtinguiſh it by the elegant title of *ſtinckfiſch*. —Smelts are often ſold in the ſtreets of London ſplit and dried. They are called *dried ſparlings*; and are recommended as a reliſh to a glaſs of wine in the morning. It is a fiſh of a very beautiful form and colour; the head is tranſparent, and the ſkin in general ſo thin, that with a good microſcope the blood may be obſerved to circulate. The irides are ſilvery; the pupil of a full black; the under jaw is the longeſt: in the front of the upper jaw are four large teeth; thoſe in the ſides of both are ſmall; in the roof of the mouth are two rows of teeth; on the tongue two others of large teeth. The ſcales are ſmall, and readily drop off: the tail conſiſts of 19 rays, and is forked. The colour of the back is whitiſh, with a caſt of green, beneath which it is varied with blue, and then ſucceeds a beautiful gloſs of a ſilvery hue.

9. The lavaretus, or gwiniad, is an inhabitant of ſeveral of the lakes of the Alpine parts of Europe. It is found in thoſe of Switzerland, Savoy, and Italy; of Norway, Sweden, Lapland, and Scotland; in thoſe of Ireland, and of Cumberland; and in Wales, in that of Llyntegid, near Bala, in Merionethſhire. It is the ſame with the ferra of the lake of Geneva; the ſchelly of Hulſe-water; the pollen of Lough Neagh; and the vangis and juvengis of Loch Mabon. In Scotland there is a tradition that it was firſt introduced there by their beauteous but unfortunate queen, Mary Stuart; and as in her time the Scotch court was much Frenchified, it ſeems likely that the name was derived from the French *vendoiſe*, a "dace;" to which a ſlight obſerver might be tempted to compare it from the whiteneſs of its ſcales. The Britiſh name *gwiniad*, or *whiting*, was beſtowed upon it for the ſame reaſon. It is a gregarious fiſh, and approaches the ſhores in vaſt ſhoals in ſpring and in ſummer; which proves in many places a bleſſed relief to the poor of inland countries, in the ſame degree as the annual return of the herring is to thoſe who inhabit the coaſts. Between 7000 and 8000 have been taken at one draught. The gwiniad is a fiſh of an inſipid taſte, and muſt be eaten ſoon, for it will not keep long; thoſe that chooſe to preſerve them do it with ſalt. They die very ſoon after they are taken. Their ſpawning ſeaſon in Llyntegid is in December. The largeſt gwiniad we ever heard of weighed between three and four pounds: the head is ſmall, ſmooth, and of a duſky hue: the eyes very large; the pupil of a deep blue: the noſe blunt at the end; the jaws of equal length: the mouth ſmall and toothleſs: the branchioſtegous rays nine: the covers of the gills ſilvery, powdered with black. The back is a little arched, and ſlightly carinated: the colour, as far as the lateral line, is gloſſed with deep blue and purple; but towards the lines aſſumes a ſilvery caſt, tinged with gold; beneath which thoſe colours entirely prevail. The tail is very much forked: the ſcales are large, and adhere cloſe to the body.

SALMON, in ichthyology. See SALMO, nº 1.

Salmon-Fishery. See *Salmon-Fishery*.

SALON, or SALOON, in architecture, a loſty, ſpacious ſort of hall, vaulted at top, and uſually comprehending two ſtories, with two ranges of windows.

The ſalon is a grand room in the middle of a building, or at the head of a gallery, &c. Its faces, or ſides, are all to have a ſymmetry with each other; and as it uſually takes up the height of two ſtories, its ceiling, Daviler obſerves, ſhould be with a moderate ſweep.

The ſalon is a ſtate-room much uſed in the palaces in Italy; and from thence the mode came to us. Ambaſſadors, and other great viſitors, are uſually received in the ſalon.

It is ſometimes built ſquare, ſometimes round or oval, ſometimes octagonal, as at Marly, and ſometimes in other forms.

SALONA, a ſea-port town of Dalmatia, ſeated on a bay of the gulph of Venice. It was formerly a very conſiderable place, and its ruins ſhow that it was 10 miles in circumference. It is 18 miles north of Spalatto, and ſubject to Venice. It is now a wretched village, preſerving few diſtinguiſhable remains of its ancient ſplendor. Doubtleſs the two laſt ages have deſtroyed all that had eſcaped the barbarity of the northern nations that demoliſhed it. In a valuable MS. relation of Dalmatia, written by the ſenator Giambattiſta Guiſtiniani, about the middle of the 16th century, there is a hint of what exiſted at that time. "The nobility, grandeur, and magnificence of the city of Salona, may be imagined from the vaults and arches of the wonderful theatre, which are ſeen at this day; from the vaſt ſtones of the fineſt marble, which lies ſcattered on, and buried in the fields; from the beautiful column of three pieces of marble, which is ſtill ſtanding in the place where they ſay the arſenal was, towards the ſea-ſhore; and from the many arches of ſurpriſing beauty,

Salona.

Fortis Travels into Dalmatia.

supported by very high marble columns; the height of the arches is a ſtone-throw, and above them there was an aqueduct, which reached from Salona to Spalatro. There are to be ſeen many ruins and veſtiges of large palaces, and many ancient epitaphs may be read on fine marble ſtones; but the earth, which is increaſed, has buried the moſt ancient ſtones, and the moſt valuable things." E. Long. 17. 29. N. Lat. 44. 10.

SALONICHI, formerly called *Theſſalonica*, a ſea-port town of Turkey in Europe, and capital of Macedonia, with an archbiſhop's ſee. It is ancient, large, populous, and rich, being about 10 miles in circumference. It is a place of great trade, carried on principally by the Greek Chriſtians and Jews, the former of which have 30 churches, and the latter as many ſynagogues; the Turks alſo have a few moſques. It is ſurrounded with walls, flanked with towers, and defended on the land-ſide by a citadel, and near the harbour with three forts. It was taken from the Venetians by the Turks in 1431. The principal merchandize is ſilk. It is ſeated at the bottom of a gulph of the ſame name, partly on the top, and partly on the ſide of a hill, near the river Vardar. E. Long. 23. 13. N. Lat. 40. 41.

SALSES, a very ſtrong caſtle of France, in Rouſſillon, on the confines of Languedoc. It was taken from the Spaniards by the French in 1642; and is ſeated on a lake of the ſame name, among mountains, 10 miles north of Perignan. E. Long. 3. 0. N. Lat. 43. 35.

SALSETTE, an iſland of the Eaſt Indies, adjacent to Bombay, from which it is in one place divided only by a narrow paſs fordable at low water. It is about 26 miles long, and eight or nine broad. The ſoil is rich, and by proper cultivation capable of producing any thing that will grow in tropical climates. It is everywhere well watered, and when in the poſſeſſion of the Portugueſe furniſhed ſuch quantities of rice, that it was called the *Granary of Goa*. It abounds alſo in all kinds of proviſions, and has great plenty of game, both of the four-footed and feathered kind. It has pretty high mountains; and there is a tradition that the whole was thrown up from the bottom of the ſea: in confirmation of which it is ſaid, that on the top of the higheſt hill there was found, ſome years ago, a ſtone anchor, ſuch as was anciently uſed by the inhabitants of that country. Here we meet with the ruins of a place called *Canara*, where there are excavations of rocks, ſuppoſed to be contemporary with thoſe of ELEPHANTA. They are much more numerous, but not comparable to the former either in bigneſs or workmanſhip.

The iſland of Salſette lately formed part of the Portugueſe dominions in India. It ought to have been ceded to the Engliſh along with Bombay, as part of the dower of Catharine of Liſbon, eſpouſed to Charles II. The fulfilment of this article, however, being evaded, the iſland remained in poſſeſſion of the Portugueſe; and notwithſtanding the little care they took of it, the revenue of it was valued at 60,000 l. Such was the negligence of the Portugueſe government, that they took no care to fortify it againſt the attacks of the Marattas, from whoſe dominions Salſette was only ſeparated by a very narrow paſs fordable at low water. Here they had only a miſerable redoubt of no conſequence, till, on the appearance of an approaching war with the Marattas, they began to build another, which indeed would have anſwered the purpoſe of protecting the iſland, provided the Marattas had allowed them to finiſh it. This, however, was not their intention. They allowed them indeed to go quietly on with their works, till they ſaw them almoſt completed, when they came and took poſſeſſion of them. The Marattas thus became dangerous neighbours to the Engliſh at Bombay, until it was ceded to the latter by the treaty concluded with theſe people in 1780. E. Long. 72. 15. N. Lat. 19. 0.

SALSOLA, GLASS-WORT: A genus of the digynia order, belonging to the pentandria claſs of plants; and in the natural method ranking under the 12th order, *Holoraceæ*. The calyx is pentaphyllous; there is no corolla; the capſule is monoſpermous, with a ſcrewed ſeed.

The ſpecies are, 1. The kali, which grows naturally in the ſalt marſhes in divers parts of England. It is an annual plant, which riſes above five or ſix inches high, ſending out many ſide branches, which ſpread on every ſide, garniſhed with ſhort awl-ſhaped leaves; which are fleſhy, and terminate in acute ſpines. The flowers are produced from the ſide of the branches, to which they ſit cloſe, and are encompaſſed by ſhort prickly leaves; they are ſmall, and of an herbaceous colour. The ſeeds are wrapped up in the empalement of the flower, and ripen in autumn; ſoon after which the plant decays. 2. The tragus grows naturally on the ſandy ſhores of the ſouth of France, Spain, and Italy. This is alſo an annual plant, which ſends out many diffuſed ſtalks, garniſhed with linear leaves an inch long, ending with ſharp ſpines. The flowers come out from the ſide of the ſtalks in the ſame manner as thoſe of the former; their empalements are blunt, and not ſo cloſely encompaſſed with leaves as thoſe of the other. 3. The ſoda, riſes with herbaceous ſtalks near three feet high, ſpreading wide. The leaves on the principal ſtalk, and thoſe on the lower part of the branches, are long, ſlender, and have no ſpines; thoſe on the upper part of the ſtalk and branches are ſlender, ſhort, and crooked. At the baſe of the leaves are produced the flowers, which are ſmall, and hardly perceptible; the empalement of the flower afterwards encompaſſes the capſule, which contains one cochleated ſeed. 4. The vermiculata grows naturally in Spain. This hath ſhrubby perennial ſtalks, which riſe three or four feet high, ſending out many ſide-branches, garniſhed with fleſhy, oval, acute-pointed leaves, coming out in cluſters from the ſide of the branches; they are hoary, and have ſtiff prickles. The flowers are produced from between the leaves toward the ends of the branches; they are ſo ſmall as ſcarce to be diſcerned, unleſs they are cloſely viewed. The ſeeds are like thoſe of the other kinds. 5. The roſacea grows naturally in Tartary. This is an annual plant, whoſe ſtalks are herbaceous, and ſeldom riſe more than five or ſix inches high. The leaves are awl-ſhaped, ending in acute points; the empalements of the flowers ſpread open: the flowers are ſmall, and of a roſe colour, but ſoon fade: the ſeeds are like thoſe of the other ſorts.

All the ſorts of glaſs-wort are ſometimes promiſcuouſly uſed for making the ſal kali, but it is the third ſort which is eſteemed beſt for this purpoſe. The manner of making it is as follows: Having dug a trench

near

near the ſea, they place laths acroſs it, on which they lay the herb in heaps, and, having made a fire below, the liquor, which runs out of the herbs, drops to the bottom, which at length thickening, becomes ſal kali, which is partly of a black, and partly of an aſh-colour, very ſharp and corroſive, and of a ſaltiſh taſte. This, when thoroughly hardened, becomes like a ſtone; and in that ſtate is tranſported to different countries for making of glaſs.

SALT, one of the great diviſions of natural bodies, but which has never yet been accurately defined. The characteriſtic marks of ſalt have uſually been reckoned its power of affecting the organs of taſte, and being ſoluble in water. But this will not diſtinguiſh ſalt from quicklime, which alſo affects the ſenſe of taſte, and diſſolves in water; yet quicklime has been univerſally reckoned an earth, and not a ſalt. The only diſtinguiſhing property of ſalts, therefore, is their cryſtallization in water: however, this does not belong to all ſalts; for the nitrous and marine acids, though allowed on all hands to be ſalts, are yet incapable of cryſtallization, at leaſt by any method hitherto known. Several of the imperfect neutral ſalts alſo, ſuch as combinations of the nitrous, muriatic, and vegetable acids, with ſome kinds of earths, cryſtallize with very great difficulty. However, by the addition of ſpirit of wine, or ſome other ſubſtances which abſorb part of the water, keeping the liquor in a warm place, &c. all of them may be reduced to cryſtals of one kind or other. Salt, therefore, may be defined a ſubſtance affecting the organs of taſte, ſoluble in water, and capable of cryſtallization, either by itſelf or in conjunction with ſome other body; and, univerſally, every ſalt capable of being reduced into a ſolid form, is alſo capable of cryſtallization *per ſe*. Thus the claſs of ſaline bodies will be ſufficiently diſtinguiſhed from all others: for quicklime, though ſoluble in water, cannot be cryſtallized without addition either of fixed air or ſome other acid; yet it is moſt commonly found in a ſolid ſtate. The precious ſtones, baſaltes, &c. though ſuppoſed to be formed by cryſtallization, are nevertheleſs diſtinguiſhed from ſalts by their inſipidity and inſolubility in water.

But acids and alkalis, and combinations of both, when in a concrete form, are ſalts, and of the pureſt ſort. Hence we conclude, that the bodies, to which the name of *ſalts* more properly belongs, are the concretions of thoſe ſubſtances; which are accordingly called *acid ſalts*, *alkaline ſalts*, and *neutral ſalts*. Theſe laſt are combinations of acid and alkaline ſalts, in ſuch proportion as to render the compounds neither ſour nor alkaline to the taſte. This proportionate combination is called *ſaturation*: thus the common kitchen-ſalt is a neutral ſalt, compoſed of marine acid and mineral alkali combined together to the point of ſaturation. The appellation of *neutral ſalts* is alſo extended to denote all thoſe combinations of acids, and any other ſubſtance with which they can unite, ſo as to loſe, wholly or in great meaſure, their acid properties.

But altho' this general definition of ſalts is commonly received, yet there are many writers, eſpecially mineralogiſts, who confine the denomination of *ſalts* in the manner we firſt mentioned, viz. to thoſe ſubſtances only which, beſides the general properties of ſalts, have the power of cryſtallizing, that is, of arranging their particles ſo as to form regularly-ſhaped bodies, called *cryſtals*, when the water ſuperfluous to their concrete exiſtence has been evaporated.

The ancient chemiſts aſſerted that ſalt was one of the component principles of metals, and indeed of every thing elſe: a doctrine which was attempted to be revived by the late Dr Price of Guildford, who thought it probable that the baſis of all imperfect metals is ſaline, becauſe Mr Scheele had lately extracted a real acid from arſenic, which, by the addition of a proper quantity of phlogiſton, becomes a ſemimetal. But here the argument will hold only with regard to the ſemimetals, all of which are volatile in the fire, and therefore may poſſibly have a volatile baſis, ſuch as all acids are in ſome degree: but ſome of the imperfect metals, as tin and copper, may be reduced to a calx equally refractory with quicklime itſelf; and even zinc, though volatile in cloſe veſſels, is yet capable of being reduced to an exceedingly refractory calx called *flowers of zinc*; and it is to be obſerved, that the regulus of arſenic, even in its moſt perfect metalline form, cannot be calcined like other metals. The common opinion that metals have an earthy, rather than a ſaline baſis, ſeems to be well founded.

The origin of ſalts is very much, or rather totally, unknown. Some eminent chemiſts, particularly Stahl, have ſuppoſed that the number of ſubſtances truly and eſſentially ſaline is very ſmall; nay, that there is but one ſaline principle in nature. This principle they ſuppoſe to be the vitriolic acid, as being the moſt ſimple and indeſtructible of them all. Stahl delivers his opinion on this ſubject in the following words: "That he conſiders the vitriolic acid as the only ſubſtance eſſentially ſaline; as the only ſaline principle which, by uniting more or leſs intimately with other ſubſtances that are not ſaline, is capable of forming an innumerable multitude of other ſaline matters, which nature and art ſhew us; and, ſecondly, that this ſaline principle is a ſecondary principle, compoſed only by the intimate union of two primary principles, water and earth.

In ſupport of this theory Mr Macquer argues in the following manner: "Every true chemiſt will eaſily diſcover that this grand idea is capable of comprehending by its generality, and of connecting together, all the phenomena exhibited by ſaline ſubſtances. But we muſt at the ſame time acknowledge, that when we examine the proofs upon which it is founded, although it has a great appearance of truth by its conſiſtency with the principles of chemiſtry, and with many phenomena, yet it is not ſupported by a ſufficient number of facts and experiments to aſcertain its truth. We might here examine what degree of probability ought to be granted to this theory of ſalts; but this could not be properly accompliſhed, without entering into long details, and penetrating into the depths of chemiſtry. We are therefore obliged to relate only what is moſt eſſential to be known concerning this grand hypotheſis. We may perceive at once, that the former of thoſe propoſitions upon which is founded the theory which we have mentioned, cannot be demonſtrated, unleſs it be previouſly proved that every ſaline matter, excepting pure vitriolic acid, is nothing but this ſame acid differently modified, the primary properties of which are more or leſs altered or diſguiſed by the union contracted with other ſubſtances. But we confeſs, that chemiſts are not capable of proving deciſively this opinion; which, however, will appear very probable from the following reflections.

"First, Of all ſaline matters known, none is ſo ſtrong,

so unalterable, so eminently possessed of saline properties, as vitriolic acid."

The vitriolic acid, when combined with other substances, forms vitriolic salts, which vary both in specific names and properties, according to the various substances with which the acid is combined. Thus the vitriolic acid, combined with mineral alkali, forms the salt called *Glauber's salt*, or *sal mirabile*. When it is combined with calcareous earths, it forms vitriolic salts with bases of calcareous earth, which are commonly called *selenites*. When combined with argillaceous earths, it forms alum. When combined with metals, it forms vitriolic salts with metallic bases, to which the general name *vitriols* is given; and in commerce are commonly called *copperas*. The vitriols principally used are, 1. The martial vitriol; called also *English vitriol*, *green vitriol*, or *green copperas*, which is a combination of vitriolic acid with iron. 2. The vitriol of copper, called also *blue vitriol*, *Cyprian vitriol*, or *blue copperas*; which is a combination of vitriolic acid and copper. 3. The vitriol of zinc, called also *white copperas*, and *Goslar vitriol*, which is a combination of the same acid with a semimetal called *zinc*. It is a property peculiar to the vitriolic acid, that all the combinations of it, with those substances with which it can form neutral salts, are susceptible of crystallization.

"Secondly, Amongst the other saline substances, those which appear most active and most simple, as nitrous and marine acids, are at the same time those whose properties most resemble the properties of vitriolic acid."

The nitrous acid, combined with all the substances with which it can mix, forms saline substances, in general called *nitrous salts*; specifying each particular salt by the name of the substance united to the acid. Thus nitrous acid, with fixed vegetable alkali, forms a saline substance called *nitre*, or *saltpetre*. With mineral alkali, forms cubic or quadrangular nitre. When mixed with metallic substances, forms metallic nitres, which are specified *nitre of gold*; *nitre of silver*, or *lunar nitre*, *lunar crystals*, and *crystals of silver*, *nitrous crystals of mercury*; *nitre of copper*, &c.

"Thirdly, We may give to vitriolic acid many of the characteristic properties of nitrous acid, by combining it in a certain manner with the inflammable principle, as we see in the volatile sulphureous acid; and even, according to an experiment of Mr Piech, related in a memoir concerning the origin of nitre, which gained the prize of the academy of Berlin, vitriolic acid, mixed with vegetable and animal matters susceptible of fermentation, is really transformed into a nitrous acid by the putrefaction of these matters. See CHEMISTRY, n° 720.

"Fourthly, The marine acid, although its principles are less known than those of the nitrous acid, may be approximated to the character of vitriolic and nitrous acids by certain methods. This acid, after it has been treated with tin and other metallic matters, is capable of forming either with spirit of wine, as vitriolic acid does, which it cannot do in its natural state; and when iron is dissolved in it, it seems to be approximated to the nature of nitrous acid. Reciprocally, the approximation of vitriolic acid to the character of marine acid seems not impossible. Having once distilled very pure vitriolic acid upon a considerable quantity of white arsenic, I was struck with a strong smell like that of marine acid, which was not either that of arsenic or of vitriolic acid; for this has no smell when it is pure."

The marine acid, combined with various matters, forms marine salts, or simply salts, specified by the names of their particular bases. The sea-salt, or kitchen salt, and sal gem, are combinations of marine acid and mineral alkali. When this acid is combined with volatile alkali, it forms sal ammoniac (A.) With metals it forms metallic salts, called *salt of gold*, *salt of copper*, &c. according to the various metals combined with the acid. The salt of silver is also called *luna cornea*; the salt of lead is often called *plumbum corneum*; and the salts of antimony, and of arsenic, are known by the names of *butter of antimony*, and *butter of arsenic*.

"Fifthly, Oily vegetable acids become so much stronger, and more similar to vitriolic acid, as they are more perfectly deprived of their oily principle, by combining them with alkalis, earths, or metals; and afterwards by separating them from these substances by distillation, and especially by frequently repeating these operations. They might perhaps be reduced to a pure vitriolic acid, by continuing sufficiently this method: and reciprocally, vitriolic and nitrous acids, weakened by water, and treated with much oily matters, or still better with spirit of wine, acquire the characters of vegetable acids. We may see a remarkable instance of this in Mr Pott's dissertation *De acido nitri vinoso*. [The most remarkable experiment in which is related under the article CHEMISTRY, n° 781.]

"Sixthly, The properties of fixed alkalis seem to be very different from those of acids in general, and consequently of vitriolic acid. Yet if we consider that a large quantity of earth enters their composition; that much of it may be separated by repeated solutions and calcinations; and also, that by depriving these saline substances of their earthy principles, they become less fixed, more deliquescent, and, in a word, more similar to vitriolic acid in this respect;—we shall not think it improbable, that fixed alkalis owe their saline properties to a saline principle, of the nature of vitriolic acid, but much disguised by the quantity of earth, and probably of inflammable principle, to which it is united in these combinations. The properties of volatile alkalis, and the transformation of fixed alkali, or of its materials, into volatile alkali in putrefaction, and in several distillations, seem to show sufficiently that they are matters essentially saline, as fixed alkalis are, and that their volatility which distinguishes them proceeds from their containing a less quantity of earth, but more attenuated, and a portion of very subtile and volatile oil, which enters their composition. [For some other particulars relating to the transmutation of salts, see CHEMISTRY, n° 784.]

"Besides these principal facts, there are many others, too numerous to be even slightly mentioned here; they may be found scattered in the works of chemists, particularly of Stahl. But persons who would collect and compare all the experiments relating to this subject,

(A) Ammoniacal salts is also a general name given to all neutral salts composed of an acid saturated with a volatile alkali.

subject, ought to know, that many of them are not sufficiently ascertained; and that perhaps a greater number of them have not been sufficiently prosecuted, and are, properly speaking, only begun. We must even acknowledge, that many of those experiments which we have mentioned have not been sufficiently prosecuted.

"The second fundamental proposition of the theory of salts, namely, 'That the vitriolic acid is compounded of only the aqueous and earthy principles,' is, like the first, supported by many facts which give it a degree of probability, but which do not amount to a complete demonstration. This proposition may be supported by the following considerations.

"First, Experience constantly shows, that the properties of compound bodies are always the result of those of the component parts of these bodies, or rather they are the properties of these component bodies modified by one another.

"Thus, if a body be composed of two principles, one of which is fixed and the other volatile, it will have a less degree of fixity than the former, and a less volatility than the latter. If it be composed of two principles, one of which is specifically heavier than the other, its specific gravity will be greater than that of one of them, and less than that of the other. The same observation is applicable to all the other essential properties, excepting those which destroy each other; as, for instance, the tendency to combination, or the dissolving power; for these latter properties are weakened so much more in the compounds as their principles are more strongly united, and in more just proportion.

"We observe, nevertheless, that the properties of compound bodies are not always exactly intermediate betwixt the properties of the component bodies; for, to produce this mean, the quantities of each of the component parts must be equal, which is the case in few or no compounds.

"Besides, some particular circumstances in the manner in which the principles unite with one another, contribute more or less to alter the result of the combined properties: for instance, experience shows, that when several bodies, particularly metals, are united together, the specific gravities of which are well known, the allay formed by such union has not the precise specific gravity which ought to result from the proportion of the allayed substances; but that in some allays it is greater and in others less. But we are certain, on the other side, that these differences are too inconsiderable to prevent our distinguishing the properties of the principles in the compounds which they form, especially when they have very different properties.

"These things being premised, when we examine well the properties of vitriolic acid, we shall easily find that they partake of the properties of the aqueous and of the earthy principles.

"First, When this acid is as pure as we can have it, it is like the purest water and the purest vitrifiable earths, free from colour or smell, and perfectly transparent.

"Secondly, Although we cannot deprive the vitriolic acid of all the water superabundant to its saline essence, and therefore its precise specific gravity has not been determined, we know that when it is well concentrated, it is more than twice as heavy as pure water, and much less heavy than any earthy substance.

"Thirdly, This acid is much less fixed than any pure earth, since, however well it may be concentrated, it may always be entirely distilled; for which purpose a much stronger degree of heat is requisite than for the distillation of pure water.

"Fourthly, We do not know the degree of fixity of vitriolic acid, or the adhesion of aggregation, which its integrant parts have one to another, because for this purpose the vitriolic acid ought to be deprived of all superabundant water: but if we judge of it by the solid consistence of this acid when highly concentrated, as we see from the vitriolic acid called *glacial*, the integrant parts of this acid seem susceptible of a much stronger adhesion than those of pure water; but much less than those of earth, as we see from the instance of hard stones.

"Fifthly, The union which this acid contracts with water and with earths, shows that these substances enter into its composition; for we know, that in general compounds are disposed to unite superabundantly with the principles which compose them. All these properties of vitriolic acid, which so sensibly partake, and much more than any other acid, of the properties of earth and of water, are sufficient to induce us to believe that it is composed of these two principles; but it has one very eminent property, which is common with it to neither water nor pure earth, which is, its violent and corrosive taste. This property is sufficient to raise doubts, if we could not explain it from principles, which seem certain and general, relating to the combination of bodies.

"We observe, then, concerning the property now in question, that is, of taste in general, that it can only be considered as an irritation made upon the organs of taste by sapid bodies; and if we reflect attentively upon it, we shall be convinced, that no substance that is not impressed by some impulse can irritate or agitate our sensible organs, but by a peculiar force of its integrant parts, or by their tendency to combination; that is, by their dissolving power. According to this notion, the taste of bodies, or the impression made upon our sensible organs by their tendency to combination, or by their dissolving power, are the same property; and we see accordingly, that every solvent has a taste, which is so much more strong as its dissolving power is greater; that those whose taste is so violent that it amounts to acrimony, corrosion, and causticity, when applied to any other of the sensible parts of our body besides the organs of taste, excite in them itching and pain.

"This being premised, the question is, How earth, in which we perceive no taste nor dissolving power, and water, which has but a very weak dissolving power, and little or no taste, should form by their combination a substance, such as the vitriolic acid is, powerfully corrosive and solvent?

"To conceive this, let us consider, first, that every part of matter has a power by which it combines, or tends to combine, with other parts of matter. Secondly, that this force, the effects of which are perceptible, in chemical operations, only among the very small molecules, or the integrant and constituent parts of bodies, seems proportionable to the density or specific gravity of these parts. Thirdly, that this same force is limited

in every integrant molecule of matter: that if we consider this force as not satisfied, and consequently as a simple tendency to combination, it is the greatest possible in an integrant molecule of matter perfectly insulated, or attached to nothing; and is the smallest possible, or none, when it is satisfied by its intimate combination with other parts capable of exhausting all its action; its tendency being then changed into adhesion.

"Hence we may infer, that the integrant parts of the earthy principle have essentially, and like all the other parts of matter, a force of tendency to union, or of cohesion in union, according to their condition; that as this earthy principle has a much more considerable density or specific gravity than all other simple bodies that we know, we may probably presume that its primary integrant molecules have a more considerable force of tendency to union, in the same proportion, than the integrant parts of other principles; that consequently when they cohere together, and form an aggregate, their aggregation must also be stronger and firmer than that of any other body. Accordingly we see, that the purest earthy substances, whose parts are united and form masses, such as, for instance, the stones called *vitrifiable*, are the hardest bodies in nature. We are no less certain, that as the tendency of the parts of matter to unite is so much less evident as it is more exhausted and satisfied in the aggregation, the parts of the earthy principle being capable of exhausting mutually all their tendency to union, we may thence infer, that every sensible mass of pure earthy matter must appear deprived of any dissolving power; of taste; in a word, of tendency to union from the firmness of its aggregation. But we may also infer, that when these primary integrant parts of the earthy principle are not united together in aggregation, then, resuming all the activity and tendency to union which are essential to them, they must be the strongest and most powerful of all solvents.

"These being premised, if we suppose again, with Stahl and the best chemists, that, in the combination of the saline principle or of vitriolic acid, the parts of the earthy principle are united, not with each other, as in the earthy aggregation, but with the primary parts of the aqueous principle, each to each, we may then easily conceive, that the primary integrant parts of the water, having essentially much less tendency to combination than those of earth, the tendency of these latter to union will not be exhausted, but satisfied only partly, by their combination with the former; and that consequently a compound must result, the integrant parts of which will have a strong dissolving power, as vitriolic acid is.

"We may see from hence how much mistaken chemists are, who, considering earth only in its aggregation, or rather not attending to this state, and not distinguishing it from that state in which the parts of this same earth are so separated from each other by the interposition of another body, that they cannot touch or cohere together, have considered the earthy principle as a substance without force or action, and have very improperly called that a *passive principle*, which of all others is the strongest, most active, and most powerful.

"However this general theory of salts may conform with the most important phenomena of chemistry, we must acknowledge, that it can only be proposed as a systematical opinion, till it be evidently demonstrated by the decisive means employed in chemical demonstrations, namely, by decomposition and recomposition: thus, if we could reduce vitriolic acid to earth and water, and make that acid by combining together these two principles, this theory would cease to be a system, and would become a demonstrated truth. But we must confess, that this theory is less supported by experiment than by argument, from the many difficulties that are inevitable in such inquiries. For on one side, we know that the simpler bodies are, the more difficult is their decomposition; and on the other side, the stronger the aggregation is, the greater is the difficulty of making it enter into a new combination. Thus, as vitriolic acid is very simple, since it is a compound of the first order, it ought strongly to resist decomposition; and as the aggregation of pure earth is the firmest that we know, it cannot easily be made to enter as a principle into a new combination with water to form a saline matter. The following are the principal experiments which have been made relative to the subject.

"First, We seem to be certain, from many proofs, that all saline substances, comprehending those that contain vitriolic acid, as vitriolated tartar, Glauber's salt, and other vitriolated salts which are sufficiently fixed to support a perfect drying, or rather calcination, being alternately dissolved, dried, and calcined a number of times, are more and more diminished in quantity, and that earth and water are separated from them each operation. But alkaline salts appear to be still more susceptible than any other saline matter of this kind of decomposition.

"Secondly, When nitre is burnt in close vessels, so that we may retain not only all that remains fixed after this burning, but also what exhales in vapours, as in the experiment of the clyssus of nitre, we have a proof which seems decisive, that the mineral acid of this salt, which is not very far from the simplicity of vitriolic acid, is totally decomposed and reduced into earth and water. For if we examine the fixed residuum in the retort, we find that it is only the alkali that was contained in the nitre, charged with a superabundant earth, which is separable from it by solution and filtration. And if the liquor in the receiver, formed by the vapours condensed there, be examined, which ought to be nitrous acid; if this acid had not been destroyed, we find, that, so far from being acid, it is only pure water, sometimes even charged with a little fixed alkali, which had been raised by the force of the detonation. Thus nitrous acid is made to disappear in this experiment, and in its place we find only earth and water.

"Thirdly, The phenomena of limestone, which by calcination and extinction in water acquires saline properties that it had not before its attenuation by fire and its combination with water; and also the experiment of Beccher, who asserts, that if a vitrifiable stone be alternately made red-hot, and extinguished in water a number of times, it may be so attenuated that it shall be like a saline gelatinous matter; these, I say, show that saline matters are actually formed by the intimate combination of the very attenuated parts of earth with those of water. We find in the writings of Beccher and Stahl, and particularly in the *Specimen Becchericanum* of the latter author, many other observations and experiments tending to prove the same proposition; but we must confess, that none of the experiments we have mentioned, excepting that of the decomposition

of nitrous acid by burning, are absolutely decisive; principally because they have not been sufficiently repeated or prosecuted, nor carefully enough examined in all their circumstances."

On this theory it is obvious to remark, that our author has omitted to mention the most active part of the composition of salts, namely elementary fire. Of this both acids and alkalis undoubtedly contain a great quantity in a very active state, as is evident from their performing the effects of fire when applied to certain substances; nay, from their actually bursting into flame when mixed with some kinds of oils. For an explanation of the reason of which, see HEAT, and the various detached articles relative to that subject. Whatever doubts we may have of the power of mere water combined with mere earth to affect the organs of taste, we can have none that the element of fire is capable of so doing; and from the very tasting of these substances, we may be assured, that whatever gives that peculiar sensation to the tongue which we call *acid* or *alkaline*, gives also the other properties of the salt, whatever they may be. In alkalis, no doubt the greatest part of the composition is earth; but from what has been said on QUICKLIME, it appears, that mere earth, by the artificial action of fire alone, acquires all the properties of salt, that of crystallizing *per se* excepted: it seems probable therefore, that, in the more perfect operations of nature, the same materials are used; only the proportions are such, that the substance is more soluble, and its causticity greater, than even quicklime itself. With regard to acids, the earthy parts seem to be fewer; and in all probability the most considerable ingredient in their composition is water: but in what manner this element is united to that of fire so as to produce the peculiar phenomena of acids, cannot be explained.

The acid of tartar (the purest part of which, or that saline substance which first crystallizes by evaporation in the vessels in which it is purified, is called *cream of tartar*), and also all other concrete vegetable acids analogous to it, when mixed with various other substances, form compounds, generally called *tartareous salts*, or *soluble tartars*, because they are dissolved by water more easily than the acid of tartar itself. Acetous salts, that is, all salts containing the acid of vinegar, are also combined with various bases, and form saline substances of different names; the principal of which are, the acetous salt of copper, called *crystals of Venus, or of verdigris*, by the chemists, and *distilled* or *crystallized verdigris* in commerce; the acetous salt of lead, commonly called *salt* or *sugar of lead*; and the acetous mercurial salts. Sugar is an essential vegetable salt, of a pleasant sweet taste, containing a vegetable acid combined with earth and oil.

Potash is a fixed vegetable alkali, extracted from the ashes of wood. Concrete volatile alkalis are generally called *volatile salts*; although this name is sometimes also given to the volatile salt of amber, which is not an alkaline but an acid salt. Borax is a neutral saline matter, whose origin, whether animal or vegetable, is as yet unknown, its components being not sufficiently examined. It is soluble in water, and very nearly as crystallizable as alum. When borax is exposed to the fire, it first bubbles and foams very much, but afterwards it melts into a clear glass. When acids are combined with the alkaline part of borax, a substance of a singular nature is separated from it, commonly called *sedative salt*. Although this substance acts as an acid in borax by saturating its alkali, yet it has no acid taste, nor doth it turn the tincture of heliotropium to a red, as other acids do. It is the property of borax to facilitate considerably the fusion of metals, of earths, and other substances. Some species of stones and earth cannot be vitrified at all, except they are mixed with borax. For this property borax is commonly used as a flux (that is, a substance which facilitates the fusion of other bodies) in various manufactories; but especially in soldering metals, and in assaying ores. Phosphoric salts are combinations of alkaline, earthy, and metallic substances with the acid obtained from the phosphorus of urine. Besides the above-mentioned salts, there are several others to be met with in the writings of the chemical and medical authors; but, as they are of little consequence, we shall omit any account of them.

Some new neutral salts have been formed by the dephlogisticated marine, or, according to the new theory, the oxygenated muriatic acid.—This was first taken notice of by M. Berthollet, and the discovery is thus illustrated by Dr Dellfuss, in Crell's Annals for the year 1788, vol. i. p. 319.

"In the month of November 1786 (says he), whilst I was preparing to translate Higgins's experiments respecting the acetous acid, I found the following amongst the numerous observations which that work contains, p. 180. 'The acid elastic fluid which issues, when two pounds of manganese are mixed and distilled with two or three of ordinary spirit of sea-salt, may all, except a small portion of phlogistic air, be condensed in a solution of fixed vegetable alkali; and the solution thus impregnated yields a considerable quantity of nitre, which crystallizes in the ordinary form, and detonates on red-hot coals. The solution at the same time yields regenerated sea-salt.' The part of this proposition which relates to the form of the crystals and to their detonation is sufficiently plain; but that I might have a still more complete conviction on the subject, I repeated the experiment upon a small scale.

"For this purpose I put into a vial an ounce of pulverised oxyd (*calx*) of manganese with an ounce and a half of muriatic acid, and by means of a bent tube I directed the vapour into another vial, which contained a solution of vegetable alkali. I then distilled by the gentle heat of a small lamp. From the vial containing the alkali went a second tube, for the purpose of carrying off the air which I hoped to obtain by this process.

"As soon as the oxygenated muriatic acid appeared, some air escaped through the tube, which showed all the properties of common atmospheric air; and as soon as all the air which the vials contained previous to the distillation had been expelled, no more such air appeared. The vapours of the oxygenated muriatic acid were absorbed by the solution of vegetable alkali, without the extrication of the smallest portion of carbonic acid (fixed air) from the alkali. As fast as the alkali, which adhered to the sides of the glass, absorbed the acid vapour, prismatic crystals appeared; and many more, which I obtained a few hours afterwards, were formed in the liquor. Although these crystals detonated in the fire, they had a taste very different from that of nitre. It was extremely pungent, and was rendered still more

more intolerable by the suffocating odour of the nitro-muriatic acid *(aqua regia)*. In order to complete the crystallization, I evaporated in the same vial the remaining liquor. As soon as the vapour appeared, a quantity of carbonic acid was disengaged, and afterwards some atmospheric air. The salt which I obtained by crystallization after the evaporation was a true muriat of potash, which did not detonate in the fire. Probably Mr Higgins performed the operation in the way I have described; but he was too hasty in concluding this salt to be nitre merely because it detonated. I gave an account of this experiment to Mr Kirwan at the time, and soon after communicated it to Professor Gadolin, who offered to assist me in repeating the experiment.

"We agreed to employ crystallized carbonat of soda (mild mineral alkali); and the following was the result of our experiment. We dissolved some of this carbonat in a large quantity of water, and we employed two or three hours a day, for several successive days, in introducing into the solution as much oxygenated muriatic gas as was sufficient entirely to saturate it; we then poured the saline liquor into a glass bason, and left it covered over to evaporate spontaneously. After some time a number of prismatic crystals were formed, which detonated in the fire like nitre. They occasioned a brown precipitate from a solution of iron in sulphuric or vitriolic acid; and mixed with sal ammoniac, they gave out a strong ammoniacal odour, accompanied with some effervescence, which was to be attributed to the extrication of fixed air during the mixture. The remaining part of the liquor evaporated again, produced fresh crystals, which, though they certainly had a faint smell of oxygenated muriatic acid, in reality consisted partly of muriat of soda (common salt), and partly of uncombined soda; for they did not detonate, and they precipitated iron of a light green colour. The liquor which appeared above these crystals, however, had not yet entirely lost the smell of the oxygenated muriatic acid. Since this, M. Gadolin has made the following experiment, which he communicated to me. He put two drams of magnesia, saturated with carbonic acid, into an ounce and a half of water, into which he introduced during several hours a quantity of oxygenated muriatic gas. The water evidently acquired the odour of the oxygenated muriatic acid. He filtered the liquor, and washed and dried that part of the magnesia which had not been dissolved, and which weighed one dram 4-5ths, so that the water was found to have dissolved 1-5th of a dram. As soon as the liquor began to boil, a strong effervescence was occasioned, some oxygenated muriatic gas was disengaged, and a small quantity of carbonat of magnesia was precipitated. When the liquor had become cool, it was filtered, that it might be separated from the precipitated powder. It had still the same odour; and on being again heated, an effervescence similar to the first took place, and a fresh quantity of carbonat of magnesia was separated. This phenomenon appeared every time M. Gadolin boiled the liquor after its cooling, till at last he had evaporated it to dryness, when there still remained a small quantity of magnesia. Hence M. Gadolin concludes, that water, oxygenated muriatic acid, and carbonat of magnesia, form a combination which heat does not decompose till the vapour of the water carries off the oxygenated muriatic acid, at which time the carbonat of magnesia is precipitated. In consequence of what we have now related, we ought to reckon, in addition to the two salts discovered by M. Berthollet, another salt, to which, according to the new French nomenclature, might be given the name *murias oxygenatus magnesiæ liquidus*, because we cannot obtain it in a concrete form. The oxygenated muriatic acid appears to enter into a very different, or at least into a much more intimate, combination with the metals; a subject which greatly merits the attention of the chemist.

The probability of this proposition is strengthened by the theory of M. Berthollet; according to which the mercury in corrosive muriat of mercury (corrosive sublimate) is combined with the oxygenated muriatic acid, so as not to be separated from it without great difficulty.

Common SALT, or *Sea-Salt*, the name of that salt extracted from the waters of the ocean, which is used in great quantities for preserving provisions, &c.

It is a perfect neutral salt, composed of marine or muriatic acid, saturated with mineral alkali. It has a saline but agreeable flavour. It requires about four times its weight of cold water to be dissolved, and nearly the same quantity of boiling water, according to Macquer. But according to Kirwan, it only requires 2,5 its weight of water to be dissolved in the temperature of sixty degrees of Fahrenheit. This salt always contains some part formed with a calcareous base; and, in order to have it pure, it must be dissolved in distilled water; then a solution of mineral alkali is to be poured in it until no white precipitation appears; then by filtrating and evaporating the solution, a pure common salt is produced. Its figure is perfectly cubic, and those hollow pyramids, or *tremies* as the French call them, as well as the parallelopipeds formed sometimes in its crystallization, consist all of a quantity of small cubes disposed in those forms. Its decrepitation on the fire, which has been reckoned by some as a characteristic of this salt, although the vitriolated tartar, nitrous lead, and other salts, have the same property, is owing chiefly to the water, and perhaps also to the air of its crystallisation.

Its specific gravity is 2,120 according to Kirwan. The acid of tartar precipitates nothing from it. One hundred parts of common salt contain thirty-three of real acid, fifty of mineral alkali, and seventeen of water. It is commonly found in salt water and salt springs, in the proportion of even thirty-six *per cent*. It is found also in coals, and in beds of gypsum. This salt is unalterable by fire, though it fuses, and becomes more opake: nevertheless a violent fire, with the free access of air, causes it to evaporate in white flowers, which stick to the neighbouring bodies. It is only decomposed, as Macquer affirms, by the vitriolic and nitrous acid; and also by the boracic or sedative salt. But although nitre is decomposed very easily by arsenic, this neutral marine salt is nowise decomposed by the same. According to Mongez, the fixed vegetable alkali, when caustic, decomposes also this marine salt. It preserves from corruption almost all sorts of animal food much better for use than any other salt, as it preserves them without destroying their taste and qualities; but when applied in too small a quantity, it then forwards their corruption.

Of this most useful commodity there are ample stores on land as well as in the ocean. There are few countries which

which do not afford vast quantities of rock or fossil salt. Mines (A) of it have long been discovered and wrought in England, Spain, Italy, Germany, Hungary, Poland, and other countries of Europe. In several parts of the world, there are huge mountains which wholly consist of fossil salt. Of this kind are two mountains in Russia, nigh Astracan; several in the kingdoms of Tunis and Algiers, in Africa; and several also in Asia; and the whole island of Ormus in the Persian gulf almost entirely consists of fossil salt. The new world is likewise stored with treasures of this useful mineral, as well as with all other kinds of subterranean productions. Moreover, the sea affords such vast plenty of common salt, that all mankind might thence be supplied with quantities sufficient for their occasions. There are also innumerable springs, ponds, lakes, and rivers, impregnated with common salt, from which the inhabitants of many countries are plentifully supplied therewith. In some countries which are remote from the sea, and have little commerce, and which are not blessed with mines of salt or salt-waters, the necessities of the inhabitants have forced them to invent a method of extracting their common salt from the ashes of vegetables. The muriatic salt of vegetables was described by Dr Grew under the title of *lixiviated marine salt*. Leeuwenhoek obtained cubical crystals of this salt from a lixivium of soda or kelp, and also from a solution of the lixivial salt of carduus benedictus; of which he hath given figures in a letter to the Royal Society, published in N° 173. of their Transactions. Dr Dagner, in *Act. Acad. N. C.* vol. v. obs. 150. takes notice of great quantities of it which he found mixed in potashes. And the ingenious Dr Fothergill extracted plenty of it from the ashes of fern; See *Medical Essays*, vol. v. article 13.

The muriatic salt which the excellent Mr Boyle extracted from sandiver, and supposed to be produced from the materials used in making glass, was doubtless separated from the kelp made use of in that process. Kunckel also informs us, that he took an alkaline salt; and after calcining it with a moderate fire, dissolved it in pure water, and placing the solution in a cool cellar, obtained from it many crystals of a neutral salt. He supposes, that the alkaline salt was by the process converted into this neutral salt. But it is more reasonable to believe, that the alkaline salt which he applied was not pure, but mixed with the muriatic salt of vegetables, which by this process was only separated from it.

It is doubtless chiefly this muriatic salt which, in some of the island parts of Asia, they extract from the ashes of duck-weed and of Adam's fig-tree, and use for their common salt.

That they are able in those countries to make common salt to profit from vegetables, ought not to be wondered at, since in Delhi and Agra, capitals of Indostan, salt is so scarce as usually to be sold for half-a-crown a pound. We may therefore give some credit to Marco Polo, when he informs us, that in the inner parts of the same quarter of the world, in the province of Cainda, lying west of Tebeth, the natives used salt instead of money, it being first made up in cakes, and sealed with the stamp of their prince; and that they made great profit of this money by exchanging it with the neighbouring nations for gold and musk. We are also told by Ludolfus, in his *Historia Æthiopica*, that in the country of the Abyssines there are mountains of salt, the which when dug out is soft, but soon grows hard; and that this salt serves them instead of money to buy all things. The same is confirmed by Ramusio.

Mr Boyle discovered common salt in human blood and urine. "I have observed it (says Mr Brownrigg), not only in human urine, but also in that of dogs, horses, and black cattle. It may easily be discovered in these, and many other liquids impregnated with it, by certain very regular and beautiful starry figures which appear in their surfaces after congelation. These figures I first observed in the great frost in the year 1739. The dung of such animals as feed upon grass or grain, doth also contain plenty of common salt."

Naturalists, observing the great variety of forms under which this salt appears, have thought fit to rank the several kinds of it under certain general classes; distinguishing it, most usually, into rock or fossil salt, sea-salt, and brine or fountain salt. To which classes, others might be added, of those muriatic salts which are found in vegetable and animal substances. These several kinds of common salt often differ from each other in their outward form and appearance, or in such accidental properties as they derive from the heterogeneous substances with which they are mixed. But when perfectly pure, they have all the same qualities; so that chemists, by the exactest inquiries, have not been able to discover any essential difference between them; for which reason we shall distinguish common salt after a different manner, into the three following kinds, viz. into rock or native salt, bay salt, and white salt.

By *rock salt*, or *native salt*, is understood all salt dug out of the earth, which hath not undergone any artificial preparation. Under the title of *bay salt* may be ranked all kinds of common salt extracted from the water wherein it is dissolved, by means of the sun's heat, and the operation of the air; whether the water from which it is extracted be sea-water, or natural brine drawn from wells and springs, or salt water stagnating in ponds and lakes. Under the title of *white salt*, or *boiled salt*, may be included all kinds of common salt extracted by coction from the water wherein it is dissolved; whether this water be sea water, or the salt water of wells, fountains, lakes, or rivers; or water of any sort impregnated with rock-salt, or other kinds of common salt.

The first of these kinds of salt is in several countries found so pure, that it serves for most domestic uses, without any previous preparation (white excepted); for of all natural salts rock-salt is the most abundantly furnished by nature in various parts of the world, and is found in large masses, occupying great tracts of land. It is generally formed in layers under the form of the

(A) Amongst the salt mines of chief note are those of Northwich in Cheshire, Altenmunster in Carinthia, Hall in Tyrol, Cardona in Catalonia: also those stupendous mines at Wieliczka in Poland, and Szeroczin in Upper Hungary; of which see accounts in Phil. Trans. N° 61. and 415.

Salt.

earth, as in Hungary, Moſcovy, Siberia, Poland, Calabria, Egypt, Ethiopia, and the Eaſt Indies. "In England (ſays Magellan), the ſalt mines at Northwich are in a high ground, and contain it in layers or ſtrata of various colours, of which the yellow and brown are the moſt plentiful, as I have obſerved on the ſpot, which I viſited in June 1782, in company with my worthy and learned friend Mr Volta, profeſſor of Natural Philoſophy in the Univerſity of Pavia, and well known by his great abilities, and many diſcoveries in that branch of knowledge. The mine into which we deſcended was excavated in the form of a vaſt dome or vault under ground, ſupported by various columns of the ſalt, that were purpoſely left to ſupport the incumbent weight. And the workmen having lighted a number of candles all round its circumference, it furniſhed us with the moſt agreeable and ſurpriſing ſight, whilſt we were deſcending in the large tub, which ſerves to bring up the lumps that are broken from the mine, &c. See the deſcription of the famous ſalt-mines of Wilieczka in Poland, by Mr Berniard, in the *Journal de Phyſique*, vol. 16. for 1780, pag. 459, in which the miraculous tales concerning thoſe ſubterraneous habitations, villages, and towns, are reduced to their proper magnitude and eſtimate." But the Engliſh foſſil ſalt is unfit for the uſes of the kitchen, until by ſolution and coction it is freed from ſeveral impurities, and reduced into white ſalt. The Britiſh white ſalt alſo is not ſo proper as ſeveral kinds of bay ſalt for curing fiſh and ſuch fleſh-meats as are intended for ſea proviſions, or for exportation into hot countries. So that for theſe purpoſes we are obliged, either wholly or in part, to uſe bay ſalt, which we purchaſe in France, Spain, and other foreign countries.

However, it does not appear that there is any other thing requiſite in the formation of bay ſalt than to evaporate the ſea water with an exceedingly gentle heat; and it is even very probable, that our common ſea ſalt by a ſecond ſolution and cryſtallization might attain the requiſite degree of purity. Without entering into any particular detail of the proceſſes uſed for the preparation of bay-ſalt in different parts of the world, we ſhall content ourſelves with giving a brief account of the beſt methods of preparing common ſalt.

Brownrigg on the Art of Preparing Salt.

At ſome convenient place near the ſea-ſhore is erected the ſaltern. This is a long, low building, conſiſting of two parts; one of which is called the *fore-houſe*, and the other the *pan-houſe*, or *boiling-houſe*. The fore-houſe ſerves to receive the fuel, and cover the workmen; and in the boiling-houſe are placed the furnace, and pan in which the ſalt is made. Sometimes they have two pans, one at each end of the ſaltern; and the part appropriated for the fuel and workmen is in the middle.

The furnace opens into the fore-houſe by two mouths, beneath each of which is a mouth to the aſh-pits. To the mouths of the furnace doors are fitted; and over them a wall is carried up to the roof, which divides the fore-houſe from the boiling-houſe, and prevents the duſt of the coal and the aſhes and ſmoke of the furnace from falling into the ſalt pan. The fore-houſe communicates with the boiling-houſe by a door, placed in the wall which divides them.

The body of the furnace conſiſts of two chambers, divided from each other by a brick partition called the *mid-feather*; which from a broad baſe terminates in a narrow edge nigh the top of the furnace; and by means of ſhort pillars of caſt iron erected upon it, ſupports the bottom of the ſalt pan; it alſo fills up a conſiderable part of the furnace, which otherwiſe would be too large, and would conſume more coals than, by the help of this contrivance, are required. To each chamber of the furnace is fitted a grate, through which the aſhes fall into the aſh-pits. The grates are made of long bars of iron, ſupported underneath by ſtrong croſs bars of the ſame metal. They are not continued to the fartheſt part of the furnace, it being unneceſſary to throw in the fuel ſo far: for the flame is driven from the fire on the grate to the fartheſt part of the furnace; and from thence paſſes together with the ſmoke, through two flues into the chimney; and thus the bottom of the ſalt pan is everywhere equally heated.

The ſalt pans are made of an oblong form, flat at the bottom, with the ſides erected at right angles; the length of ſome of theſe pans is 15 feet, in breadth 12 feet, and the depth 16 inches; but at different works they are of different dimenſions. They are commonly made of plates of iron, joined together with nails, and the joints are filled with a ſtrong cement. Within the pan five or ſix ſtrong beams of iron are fixed to its oppoſite ſides, at equal diſtances, parallel to each other and to the bottom of the pan, from which they are diſtant about eight inches. From theſe beams hang down ſtrong iron hooks, which are linked to other hooks or claſps of iron firmly nailed to the bottom of the pan; and thus the bottom of the pan is ſupported, and prevented from bending down or changing its figure. The plates moſt commonly uſed are of malleable iron, about four feet and a half long, a foot broad, and the third of an inch in thickneſs. The Scots prefer ſmaller plates, 14 or 15 inches ſquare. Several make the ſides of the pan, where they are not expoſed to the fire, of lead; thoſe parts, when made of iron, being found to conſume faſt in ruſt from the ſteam of the pan. Some have uſed plates of caſt iron, five or ſix feet ſquare, and an inch in thickneſs; but they are very ſubject to break when unequally heated, and ſhaken (as they frequently are) by the violent boiling of the liquor. The cement moſt commonly uſed to fill the joints is plaſter made of lime.

The pan, thus formed, is placed over the furnace, being ſupported at the four corners by brick work; but along the middle, and at the ſides and ends, by round pillars of caſt iron called *taplins*, which are placed at three feet diſtance from each other, being about eight inches high, and at the top, where ſmalleſt, four inches in diameter. By means of theſe pillars the heat of the fire penetrates equally to all parts of the bottom of the pan, its four corners only excepted. Care is alſo taken to prevent the ſmoke of the furnace from paſſing into the boiling-houſe, by bricks and ſtrong cement, which are cloſely applied to every ſide of the ſalt pan. In ſome places, as at Blyth in Nothumberland, beſides the common ſalt pans here deſcribed, they have a preparing-pan placed between two ſalt pans, in the middle part of the building, which in other works is the fore-houſe. The ſea-water being received into this preparing-pan, is there heated and in part evaporated by the flame and heat conveyed under it through flues from the two furnaces of the ſalt pans. And the hot water, as occaſion requires, is conveyed through troughs

from the preparing-pan into the ſalt pans. Various other contrivances have been invented to leſſen the expence of fuel, and ſeveral patents have been obtained for that purpoſe; but the ſalt-boilers have found their old methods the moſt convenient.

Between the ſides of the pan and walls of the boiling-houſe, there runs a walk five or ſix feet broad, where the workmen ſtand when they draw the ſalt, or have any other buſineſs in the boiling houſe. The ſame walk is continued at the end of the pan, next to the chimney; but the pan is placed cloſe to the wall at the end adjoining to the fore-houſe.

The roof of the boiling-houſe is covered with boards faſtened on with nails of wood, iron nails quickly mouldering into ruſt. In the roof are ſeveral openings, to convey off the watery vapours; and on each ſide of it a window or two, which the workmen open when they look into the pan whilſt it is boiling.

Not far diſtant from the ſaltern, on the ſea-ſhore, between full ſea and low-water marks, they alſo make a little pond in the rocks, or with ſtones on the ſand, which they call their *ſump*. From this pond they lay a pipe, through which, when the tide is in, the ſea-water runs into a well adjoining to the ſaltern; and from this well they pump it into troughs, by which it is conveyed into their ſhip or ciſtern, where it is ſtored up until they have occaſion to uſe it.

The ciſtern is built cloſe to the ſaltern, and may be placed moſt conveniently between the two boiling-houſes, on the back ſide of the fore-houſe; it is made either of wood, or brick and clay; it ſometimes wants a cover, but ought to be covered with a ſhed, that the ſalt-water contained therein may not be weakened by rains, nor mixed with ſoot and other impurities. It ſhould be placed ſo high, that the water may conveniently run out of it, through a trough, into the ſalt pans.

Beſides the buildings already mentioned, ſeveral others are required; as ſtore-houſes for the ſalt, ciſterns for the bittern, an office for his majeſty's ſalt-officers, and a dwelling-houſe for the ſalt-boilers.

All things being thus prepared, and the ſea-water having ſtood in the ciſtern till the mud and ſand are ſettled to the bottom, it is drawn off into the ſalt-pan. And at the four corners of the ſalt-pan, where the flame does not touch its bottom, are placed four ſmall lead pans called *ſcratch pans*, which, for a ſalt-pan of the ſize above-mentioned, are uſually about a foot and an half long, a foot broad, and three inches deep; and have a bow or circular handle of iron, by which they may be drawn out with a hook, when the liquor in the pan is boiling.

The ſalt pan being filled with ſea-water, a ſtrong fire of pit-coal is lighted in the furnace; and then, for a pan which contains about 1400 gallons, the ſalt-boiler takes the whites of three eggs, and incorporates them well with two or three gallons of ſea water, which he pours into the ſalt-pan while the water contained therein is only lukewarm; and immediately ſtirs it about with a rake, that the whites of eggs may everywhere be equally mixed with the ſalt-water.

Inſtead of whites of eggs, at many ſalterns, as at moſt of thoſe nigh Newcaſtle, they uſe blood from the butchers, either of ſheep or black cattle, to clarify the ſea-water: And at many of the Scots ſalterns they do not give themſelves the trouble of clarifying it.

As the water grows hot, the whites of eggs ſeparate from it a black frothy ſcum, which riſes to the ſurface of the water, and covers it all over. As ſoon as the pan begins to boil, this ſcum is all riſen, and it is then time to ſkim it off.

The moſt convenient inſtruments for this purpoſe are ſkimmers of thin aſh boards, ſix or eight inches broad, and ſo long that they may reach above half way over the ſalt-pan. These ſkimmers have handles fixed to them; and the ſalt-boiler and his aſſiſtant, each holding one of them on the oppoſite ſides of the pan, apply them ſo to each other that they overlap in the middle, and beginning at one end of the pan, carry them gently forward together, along the ſurface of the boiling liquor, to the other end; and thus, without breaking the ſcum, collect it all to one end of the pan, from whence they eaſily take it out.

After the water is ſkimmed, it appears perfectly clear and tranſparent; and they continue boiling it briſkly, till ſo much of the freſh or aqueous part is evaporated, that what remains in the pan is a ſtrong brine almoſt fully ſaturated with ſalt, ſo that ſmall ſaline crystals begin to form on its ſurface; which operation, in a pan filled 15 inches deep with water, is uſually performed in five hours.

The pan is then filled up a ſecond time with clear ſea-water drawn from the ciſtern; and about the time when it is half filled, the ſcratch-pans are taken out, and being emptied of the ſcratch found in them, are again placed in the corners of the ſalt-pan. The ſcratch taken out of theſe pans is a fine white calcareous earth found in the form of powder, which ſeparates from the ſea-water during its coction, before the ſalt begins to form into grains. This ſubtile powder is violently agitated by the boiling liquor, until it is driven to the corners of the pan, where the motion of the liquor being more gentle, it ſubſides into the ſcratch-pans placed there to receive it, and in them it remains undiſturbed, and thus the greateſt part of it is ſeparated from the brine.

After the pan hath again been filled up with ſea-water, three whites of eggs are mixed with the liquor, by which it is clarified a ſecond time, in the manner before deſcribed; and it is afterwards boiled down to a ſtrong brine as at firſt; which ſecond boiling may take up about four hours.

The pan is then filled up a third time with clear ſea-water; and after that, a fourth time; the liquor being each time clarified and boiled down to a ſtrong brine, as before related; and the ſcratch-pans being taken out and emptied every time that the pan is filled up.

Then, at the fourth boiling, as ſoon as the crystals begin to form on the ſurface of the brine, they ſlacken the fire, and only ſuffer the brine to ſimmer, or boil very gently. In this heat they conſtantly endeavour to keep it all the time that the ſalt corns or granulates, which may be nine or ten hours. The ſalt is faid to granulate, when its minute crystals cohere together into little maſſes or grains, which ſink down in the brine and lie at the bottom of the ſalt pan.

When moſt of the liquor is evaporated, and the ſalt thus lies in the pan almoſt dry on its furnace, it is then

Sal. time to draw it out. This part of the process is performed by raking the salt to one side of the pan into a long heap, where it drains a while from the brine, and is then filled out into barrows or other proper vessels, and carried into the store-house, and delivered into the custody of his majesty's officers. And in this manner the whole process is performed in 24 hours; the salt being usually drawn every morning.

In the store-house the salt is put hot into drabs, which are partitions like stalls for horses, lined on three sides and at the bottom with boards, and having a sliding-board on the fore-side to put in or draw out as occasion requires. The bottoms are made shelving, being highest at the back-side, and gradually inclining forwards; by which means the saline liquor, which remains mixed with the salt, easily drains from it; and the salt, in three or four days, becomes sufficiently dry; and is then taken out of the drabs, and laid up in large heaps, where it is ready for sale.

The saline liquor which drains from the salt is not a pure brine of common salt, but hath a sharp and bitter taste, and is therefore called *bittern;* this liquor, at some works, they save for particular uses, at others throw away. A considerable quantity of this bittern is left at the bottom of the pan after the process is finished; which, as it contains much salt, they suffer to remain in the pan, when it is filled up with sea-water. But at each process this liquor becomes more sharp and bitter, and also increases in quantity: so that, after the third or fourth process is finished, they are obliged to take it out of the pan; otherwise it mixes in such quantities with the salt, as to give it a bitter taste, and disposes it to grow soft and run in the open air, and renders it unfit for domestic uses.

After each process there also adheres to the bottom and sides of the pan a white stony crust, of the same calcareous substance with that before collected from the boiling liquor. This the operators call *stone-scratch*, distinguishing the other found in the lead-pans by the name of *powder-scratch*. Once in eight or ten days they separate the stone-scratch from their pans with iron picks, and in several places find it a quarter of an inch in thickness. If this stony crust is suffered to adhere to the pan much longer, it grows so thick that the pan is burnt by the fire, and quickly wears away.

In M. de Pagés's Travels round the World, we find the following important fact. "I had been anxious (says that author) to ascertain by comparison, whether sea-water contains salt in greater quantity under the torrid than under the other zones; and my experiments on this subject served to show, contrary to what I expected, that sea-water is impregnated with salt in less quantity within than without the tropics." These experiments were made on a hundred pounds of sea-water, taken at the depth of ten fathoms, and weighed in water-scales. M. de Pagés has given a table of these experiments, from which it appears that 100 lb. of sea-water in 46° 12′ S. lat. gave $4\frac{1}{2}$ lb. of salt, and in 1° 16′ only $3\frac{1}{4}$ lb.; and that in 74 N. lat. it gave $4\frac{1}{2}$ lb. and in 4° 22′ only $3\frac{1}{2}$ lb. these being the highest and lowest latitudes in which the experiments were made, and also the greatest and least quantities of salt.

Duty on Salt, is a distinct branch of his majesty's extraordinary revenue, and consists in an excise of 3 s. 4 d. per bushel imposed upon all salt, by several statutes of King William and other subsequent reigns. This is not generally called an excise, because under the management of different commissioners: but the commissioners of the salt-duties have, by statute 1 Ann, c. 21. the same powers, and must observe the same regulations, as those of other excises. This tax had usually been only temporary: but by statute 26 Geo. II. c. 3. was made perpetual.

Triple Salts, a kind of salts formed by the union of three ingredients; the common neutrals being composed only of two. They are but lately discovered; and it is chiefly to the industry of Mr Bergman that we owe the knowledge we have of them. Sometimes we meet even with salts of four ingredients; in which case we call the resulting compounds *quadruple* salts. The most remarkable of these complicated substances are the following.

1. *Aphronitrum*, or mineral alkali, combined with a small quantity of calcareous earth. The three ingredients here are fixed air, pure alkali, and calcareous earth. "This salt (says Cronstedt) is so strongly united with the calcareous earth, that the latter enters with it into the very crystals of the salt; though, by repeated solutions, the earth is by degrees separated from it, and falls to the bottom after every solution." Cartheuser asserts, that, on throwing into its solution in water a fixed mineral alkali, the calcareous earth was precipitated; and on the contrary, by adding oil of vitriol, nitrous acid was expelled, and a Glauber's salt produced; "from which (says M. Magellan) it is evident, that the aphronitrum is a triple salt arising from the combination of the nitrous acid with calcareous earth and mineral fixed alkali." Wallerius mentions three species of this salt; *viz.* one which contains only a mixture of calcareous earth with fixed mineral alkali. This, he says, is the aphronitrum of the ancients; but he thinks that it ought to be rather called *aphronatron*, as they bestowed the name of *natron* upon the mineral alkali. The second species is that described by Cronstedt under the title of *calcareous nitre*. The third is that described by Hoffman under the title of *aphronitrum janense*, into whose composition the vitriolic acid enters. It is a kind of Glauber's salt, and is frequently confounded with it.

The aphronitrum of Cronstedt is described by him as appearing on old walls and below vaults, or in places where it cannot be washed away by the rain. When it contains any considerable quantity of calcareous earth, it shoots into rhomboidal crystals, a figure frequently affected by the calcareous earth when it shoots into crystals: but when the aphronitrum is purer, it forms prismatic crystals. From these circumstances, M. Magellan thinks, that the aphronitrum is not only a triple but a multiple salt; as these pieces of old mortar, covered with this white froft, on ancient walls, are the very same from which the saltpetre-makers extract the mother water of nitre; after mixing with it the vegetable ashes to furnish the alkali.

2. Common salt with magnesia, or mineral alkali, contaminated by muriatic magnesia. This is a compound of common salt with magnesia, and is very deliquescent, owing to the compound of magnesia and spi-

rit of ſalt; for neither mineral alkali nor pure ſea ſalt are at all deliquiſcent in the air.

3. Vitriolated magneſia with vitriol of iron, or Epſom ſalt contaminated with copperas. This, according to M. Monet, is found in ſome mineral waters.

4. Native alum contaminated with copperas. This is ſometimes found in the aluminous ſchistus, and efflorescs in a feathery form, and is perhaps the plumoſe alum of the ancients.

5. Native alum contaminated with ſulphur. Dr Withering informs us, that this ſalt is met with about Wednesburg and Belſton, two places in Staffordſhire, where the coal-pits are on fire. It ſublimes to the furnace, whence it may be collected in conſiderable quantity during dry or froſty weather. Our author, however, does not certainly affirm that this is a true chemical union, but the parts, he ſays, cannot be diſtinguiſhed by the eye. It is kept in a deliquiſcent ſtate by an acceſs of vitriolic acid.

6. Native alum contaminated by vitriolated cobalt. This is found in ſome of the mines of Herregrund and Idria, where it ſhoots into long and ſlender filaments. M. Magellan ſuppoſes that this may be the *trichites* of the Greeks. On diſſolving it in water, the preſence of the vitriolic acid is diſcovered by adding a ſolution of terra ponderoſa in muriatic acid; the phlogiſticated alkali throws down a precipitate of cobalt, which forms a blue glaſs with cobalt or microcoſmic ſalt.

7. Vitriol of copper with iron, the *vitriolum ferreo-cupreum cyaneum* of Linnæus. It is alſo called *Vitriol of Hungary*, becauſe found in plenty in that country. Its colour is that of blue mixed with green; but ſometimes the one ſhade prevails, and ſometimes the other.

8. Vitriol of copper, iron, and zinc, is prepared in Sweden from the water pumped out of the copper mines at Dalame. The copper does not precipitate from a ſolution of this ſalt by rubbing it on iron, as is the caſe with the common blue vitriol. Large cryſtals of this ſalt are often found in the water, the copper mines from whence it is prepared.

9. Vitriol of copper and zinc. This is a quadruple ſalt, ſtyled by Linnæus *Vitriolum ferreo zinco cupreum cyaneum*. Its colour is blue inclining to green; and it does not precipitate the copper by rubbing on iron, as the common blue vitriol does. It is called the blue vitriol of Goſlar. Mongez makes a ſeparate article of a compound ſalt mentioned by Wallerius, conſiſting alſo of a vitriolated copper with zinc, but whoſe cryſtals are of a fine red colour, found lately in the mines of Fahlun in Sweden. He adds, that the pale-blue colour of the former ſalt ſhows the predominancy of the copper, by which it is neceſſarily diſtinguiſhed from the latter, where the vitriol is over-ſaturated. M. Magellan, however, is of opinion, that the red colour is owing to a proper quantity of iron in a dephlogiſticated ſtate, which has been overlooked in that compound. To this kind alſo Wallerius refers the yellowiſh vitriol found in Hungary.

10. Vitriol of iron and zinc; the green vitriol from Goſlar in the Hartz; the *vitreolum zinceo-ferreum viride* of Linnæus. It is of a pale green colour.

Salt-Mines. See SALT.

Fixed SALT. See SALT.

Salt-Water, or Sea-water (Diſtillation of). See DISTILLATION of *Water*.

Neutral SALTS. See CHEMISTRY, n° 172, 173, and 192.

Salt-Springs. Of these there are great numbers in different parts of the world, which conſiderably derive their origin from ſome of the large collections of foſſil ſalt mentioned under the article *Common SALT*. See that article, and likewiſe SPRING.

SALTIER, one of the honourable *ordinaries*. See HERALDRY, p. 452, and Plate CCXXX.

This, ſays G. Leigh, in his Accidence of Arms, was anciently made of the height of a man, and ſo full of pins, the uſe of which was to ſcale walls, &c. Upton ſays it was an inſtrument to catch wild beaſts, whence he derives this word from *ſaltus*, i. e. "a reſt." The French call this ordinary *ſautoir*, from *ſauter* "to leap;" becauſe it may have been uſed by ſoldiers to leap over walls of towns, which in former times were but low; but ſome modern authors think it is from its imitation of St Andrew's croſs.

SALTING MEAT FOR THE USE OF THE NAVY. The following is the method recommended by the late admiral Sir Charles Knowles. When the ox is killed, let it be ſkinned and cut up into pieces fit for uſe, as quick as poſſible, and ſalted while the meat is hot. For which purpoſe we muſt have a ſufficient quantity of ſaltpetre and bay-ſalt pounded together and made hot in an oven, of each equal parts; with this ſprinkle the meat at the rate of about two ounces to the pound; then lay the pieces on ſhelving boards to drain for 24 hours; which done, turn them and repeat the ſame operation, and let them lie for 24 hours longer. By this time the ſalt will be all melted, and have penetrated the meat, and the pieces be drained off; each piece muſt then be wiped dry with clean coarſe cloths. A ſufficient quantity of common ſalt muſt then be made hot likewiſe in an oven, and mixed when taken out with about one-third of brown ſugar: then the caſks being ready, rub each piece well with this mixture, and pack them well down, allowing about half a pound of the ſalt and ſugar to each pound of meat, and it will keep good ſeveral years.

It is beſt to proportion the caſks to the quantity uſed at one time, as the leſs it is expoſed to the air the better. The ſame proceſs does for pork, only a larger quantity of ſalt and leſs ſugar muſt be uſed; but the preſervation of both depends equally upon the meat being hot when firſt ſalted.

One pound of beef requires two ounces of ſaltpetre and two ounces of bay-ſalt, becauſe it is to be ſprinkled twice; an ounce of each to a pound of beef both times. The ſaltpetre requiſite for 100 lb. of beef is 12½ lb. which at 12 d. per lb. is 12 s. 6 d; and the ſame quantity of bay-ſalt (for 100 lb. of beef), at three half-pence per lb. is 1 s. 6 d.; of brown ſugar and common ſalt mixed together half a pound is required, the former in the proportion of one-third, the latter of two-thirds, to a pound of beef. The brown ſugar at 8 d. per pound. A hundred pounds of beef will take 250 ounces of it, which coſts 10 s. 5 d. The quantity of common ſalt requiſite for 100 lb. of beef is 533 ounces, which at 2 d. per lb amounts to 5 s. 6 d. The expence therefore will ſtand thus.

Saltpetre

Saltpetre, Saltsburg.

Saltpetre, 12½ lb. for 100 lb. of beef, is	L. 0	12	6
Bay-salt, 12½ lb. for do. is	0	1	6
Brown-sugar, 250 oz. for do. is	0	10	5
Beef, 100 lb. at 6d. per pound, is	2	10	0
Three casks for it at 1s. 6d each,	0	4	6
Labour, and heating the oven twice,	0	4	0
Common salt, 533 oz. for do. is	0	5	6
	L. 4	8	5

These articles are taken high; and if beef costs 6 d. per pound, meat cured thus will cost less than 1 s. per pound; and therefore comes much cheaper than live-stock in long sea-voyages

SALTPETRE. See CHEMISTRY, n° 740.

SALTSBURG, an archbishopric of Germany, in the circle of Bavaria, bounded on the east by Stiria and the Upper Austria, on the west by the county of Tyrol, on the north by the duchy of Bavaria, and on the south by the duchy of Carinthia and the bishopric of Brixen. It is said to be about 100 miles from east to west, and upwards of 60 from north to south. With respect to the soil, it is very mountainous, yielding, however, excellent pasturage, and, in consequence of that, abounding in cattle, and horses remarkable for their mettle and hardiness. This country is particularly noted for the great quantities of salt it produces, and its strong passes and castles. Here are also considerable mines of gold, silver, copper, lead, iron, and lapis calaminaris, with quarries of marble, and a natural hot-bath. The principal rivers are the Salza, the Inn, the Ens, and Muer; which, as well as the lakes and other streams, are well-stored with fish. The peasants here are all allowed the use of arms, and trained to military duty. There are no nobles in the country, and most of the lands belong to the clergy. The states consist of the prelates, the cities, and towns. Notwithstanding this country is under the power of a Popish ecclesiastic, and the violent, arbitrary, and oppressive manner in which the Protestants have always been treated, great numbers of them still remained in it till the year 1732, when no less than 30,000 of them withdrew from it, dispersing themselves in the several Protestant states of Europe, and some of them were even sent from Great Britain to the American colonies. Besides brass and steel wares, and all sorts of arms and artillery, there are manufactures of coarse cloth and linen here. The archbishop has many and great prerogatives: he is a prince of the empire, and perpetual legate of the holy see in Germany, of which he is also primate. He has the first voice in the diet of this circle, and next to the electors in that of the empire, in the college of princes, in which he and the archduke of Austria preside by turns. No appeal lies from him either in civil or ecclesiastical causes, but to the pope alone; and he is intitled to wear the habit of a cardinal. He has also the nomination to several bishoprics; and the canonicates that fall vacant in the months in which the popes, by virtue of the concordat, are allowed to nominate, are all in his gift. His suffragans are the bishops of Freysingen, Ratisbon, Brixen, Gurk, Chiemsee, Seckau, and Lavant; and of these, the four last are nominated, and even confirmed by him. and not by the pope. At the diet of the empire, his envoy takes place of all the princes that are present, under the degree of an elector. His revenue is said to amount to near 200,000 l. a year, a great part of it arising from the salt-works. He is able to raise 25,000 men; but keeps in constant pay, besides his guards, only one regiment, consisting of 1000 men. His court is very magnificent; and he has his hereditary great officers, and high colleges. The chapter consists of 24 canons, who must be all noble, but are obliged only to four months residence. At his accession to the see, the archbishop must pay 100,000 crowns to Rome for the pall. There is an order of knighthood here, instituted in 1711, in honour of St Rupert, who was the first bishop of Saltsburg about the beginning of the 8th century.

SALTSBURG, the capital of a German archbishopric of the same name, and which takes its own from the river Salza, on which it stands, and over which it has a bridge. It is a very handsome place, well fortified, and the residence of the archbishop. The houses are high, and all built of stone: the roofs are in the Italian taste, and you may walk upon them. The castle here is very strong, and as strongly garrisoned, and well provided with provisions and warlike stores. The archbishop's palace is magnificent; and in the area before it is a fountain, esteemed the largest and grandest in Germany. The stables are very lofty; and the number of the horses usually kept by the archbishop is said to be upwards of 200. The city, of which one part stands on a steep rock, is well built, but the streets are narrow and badly paved. Besides the above-mentioned, there are two other stately palaces belonging to the archbishop, one of which is called the *Nuebou*, and the other *Mirabella*. The latter of these has a very beautiful garden; and the number of trees in the orangery is so great, that Mr Keysler tells us, 20,000 oranges have been gathered from them in one year. The river Salza runs close by the walls of this garden. There are a great many other fine structures in the city, public and private, such as palaces, monasteries, hospitals, and churches. In the cathedral dedicated to St Rupert (the apostle of Bavaria, and a Scotchman by birth), all the altars are of marble of different kinds, and one of the organs has above 3200 pipes. The whole structure is extremely handsome. It is built of freestone in imitation of St Peter's at Rome. The portico is of marble, and the whole is covered with copper. Before the portico there is a large quadrangular place, with arches and galleries, in which is the prince's residence and there is a statue Peter. In the middle of this place of an unnatural of the Virgin in bronze; it is fine, but of an nnnatural size. There are large areas encompassed with handsome buildings on both sides of the church. In the middle of that which is to the left, there is a most magnificent fountain of marble, and some valuable figures of gigantic size. There is likewise a fountain in that to the right, but it is not to be compared with the former one, and the Neptune of it makes but a very pitiful figure. This town contains many more excellent buildings and statues, which remind one that the borders of Italy are not far distant. The winter and summer riding schools here are noble structures. The university was founded in 1620, and committed to the care of the Benedictines. Besides it, there are two colleges, in which the young noblemen are educated. E. Long. 33. 0. N. Lat. 47. 45.

SALVADORA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants;

plants; and in the natural method ranking with those of which the order is doubtful. The calyx is quadrifid; there is no corolla; the berry is monospermous; and the seed covered with an antlus or loose coat.

SALVAGE-MONEY, a reward allowed by the civil and statute law for the saving of ships or goods from the danger of the sea, pirates, or enemies.—Where any ship is in danger of being stranded, or driven on shore, justices of the peace are to command the constables to assemble as many persons as are necessary to preserve it; and, on its being preserved by their means, the persons assisting therein shall, in 20 days after, be paid a reasonable reward for their salvage; otherwise the ship or goods shall remain in the custody of the officers of the customs as a security for the same.

SALVATION, means the safety or preservation of any thing which is or has been in danger, and is generally used in a religious sense, when it means preservation from eternal death, or reception to the happiness of heaven, which is now offered to all men by the Christian religion upon certain conditions. The Hebrews but rarely make use of concrete terms as they are called, but often of abstracted. Thus, instead of saying that God saves them and protects them, they say that God is their salvation. Thus the word of salvation, the joy of salvation, the rock of salvation, the shield of salvation, the horn of salvation, &c. is as much as to say, The word that declares deliverance; the joy that attends the escaping a great danger, a rock where any one takes refuge, and where he may be in safety from his enemy; a buckler, that secures him from the arm of the enemy; a horn or ray of light, of happiness and salvation, &c. See THEOLOGY, &c.

SALVATOR ROSA. See ROSA.

SALVE REGINA, among the Romanists, the name of a Latin prayer, addressed to the Virgin, and sung after complines, as also upon the point of executing a criminal. Durandus says, it was composed by Peter bishop of Compostella. The custom of singing the *Salve regina* at the close of the office was begun by order of St Dominic, and first in the congregation of Dominicans at Bologna, about 1237. Gregory IX. first appointed it to be general. St Bernard added the conclusion, *O dulcis! O pia* &c

SALVIA, SAGE: A genus of the monogynia order, belonging to the digynia class of plants; and in the natural method ranking under the 42d order, *Verticillatæ*. The corolla is unequal; and the filaments placed crosswise on a pedicle. The most remarkable species are,

1. The officinalis, or common large sage, which is cultivated in gardens, of which there are the following varieties: 1. The common green sage. 2. The wormwood sage. 3. The green sage, with a variegated leaf. 4. The red sage. 5. The red sage with a variegated leaf. These are accidental variations, and therefore are not enumerated as species. The common sage grows naturally in the southern parts of Europe, but is here cultivated in gardens for use; but that variety with red or blackish leaves is the most common in the British gardens; and the wormwood sage is in greater plenty here than the common green leaved sage, which is but in few gardens.

2. The tomentosa, generally titled *balsamic sage* by the gardeners. The stalks of this do not grow so upright as those of the common sage; they are very hairy, and divide into several branches, which are furnished with broad heart-shaped woolly leaves standing upon long foot-stalks; they are sawed on their edges, and their upper surfaces are rough. The leaves, which are upon the flower stalks, are oblong and oval, standing upon shorter foot stalks, and are very slightly sawed on their edges; they grow in whorled spikes toward the top of the branches; the whorls are pretty far distant, but few flowers in each; they are of a pale blue, about the size of those of the common sort. This sage is preferred to all the others for making tea.

3. The auriculata, common sage of virtue, which is also well known in the gardens and markets. The leaves of this is narrower than those of the common sort, they are hoary, and some of them are indented on their edges towards the base, which indentures have the appearance of ears. The spikes of flowers are longer than those of the two former sorts, and the whorls are generally naked, having no leaves between them. The flowers are smaller, and of a deeper blue than those of common red sage.

4. The pomifera, with spear shaped oval entire leaves, grow naturally in Crete. This hath a shrubby stalk, which rises four or five feet high, dividing into several branches. The flowers grow in spikes at the end of the branches; they are of a pale blue colour, and have obtuse empalements. The branches of this sage have often punctures made in them by insects, at which places grow large protuberances as big as apples, in the same manner as the galls upon an oak, and the rough balls on the briar.

All the sorts of sage may be propagated by seeds, if they can be procured; but, as some of them do not perfect their seeds in this country, and most of the sorts, but especially the common kinds for use, are easily propagated by slips, it is not worth while to raise them from seeds.

SALVIANUS, an ancient father of the Christian church, who flourished in the 5th century, and was well skilled in the sciences. It is said he lived in continence with his wife Palladia, as if she had been his sister; and that he was so afflicted at the wickedness of that age, that he was called the *Jeremiah of the fifth century*. He acquired such reputation for his piety and learning, that he was named the *master of the bishops*. He wrote a Treatise on Providence; another on Avarice; and some epistles, of which Baluze has given an excellent edition; that of Conrad Rittershusius, in 2 vols octavo, is also esteemed.

SALUTATION, the act of saluting, greeting, or paying respect and reverence to any one.

When men (writes the compiler of *L'Esprit des Usages et des Coutumes*) salute each other in an amicable manner, it signifies little whether they move a particular part of the body, or practise a particular ceremony. In these actions there must exist different customs. Every nation imagines it employs the most reasonable ones; but all are equally simple, and none are to be treated as ridiculous. This infinite number of ceremonies may be reduced to two kinds; to reverences or salutations; and to the touch of some part of the human body. To bend and prostrate one's self to express sentiments of respect, appears to be a natural motion; for terrified persons throw themselves on the earth when they adore invisible beings. The affectionate touch of the

Salutation. the perſon they ſalute, is an expreſſion of tenderneſs. As nations decline from their ancient ſimplicity, much farce and grimace are introduced. Superſtition, the manners of a people, and their ſituation, influence the modes of ſalutation; as may be obſerved from the inſtances we collect.

Modes of ſalutation have ſometimes very different characters, and it is no unintereſting ſpeculation to examine their ſhades. Many diſplay a refinement of delicacy, while others are remarkable for their ſimplicity, or for their ſenſibility. In general, however, they are frequently the ſame in the infancy of nations, and in more poliſhed ſocieties. Reſpect, humility, fear, and eſteem, are expreſſed much in a ſimilar manner; for theſe are the natural conſequences of the organization of the body. Theſe demonſtrations become, in time, only empty civilities, which ſignify nothing; we ſhall notice what they were originally, without reflecting on what they are.

The firſt nations have no peculiar modes of ſalutation; they know no reverences, or other compliments, or they deſpiſe and diſdain them. The Greenlanders laugh when they ſee an European uncover his head and bend his body before him whom he calls his ſuperior. The iſlanders, near the Philippines, take the hand or foot of him they ſalute, and with it they gently rub their face. The Laplanders apply their noſe ſtrongly againſt that of the perſon they ſalute. Dampier ſays, that at New Guinea they are ſatisfied in placing on their heads the leaves of trees, which have ever paſſed for ſymbols of friendſhip and peace. This is at leaſt a pictureſque ſalute.

Other ſalutations are very incommodious and painful; it requires great practice to enable a man to be polite in an iſland ſituated in the Straits of the Sound. Houtman tells us, they ſaluted him in this odd way: "They raiſed his left foot, which they paſſed gently over the right leg, and from thence over his face." The inhabitants of the Philippines bend their body very low, in placing their hands on their cheeks, and raiſing at the ſame time one foot in the air, with their knee bent. An Ethiopian takes the robe of another, and ties it about his own waiſt, ſo that he leaves his friend half naked. This cuſtom of undreſſing on theſe occaſions takes other forms; ſometimes men place themſelves naked before the perſon whom they ſalute; it is to ſhow their humility, and that they are unworthy of appearing in his preſence. This was practiſed before Sir Joſeph Banks, when he received the viſit of two female Otaheitans. Their innocent ſimplicity, no doubt, did not appear immodeſt in the eyes of the *virtuoſo*. Sometimes they only undreſs partially. The Japaneſe only take off a ſlipper; the people of Arracan, their ſandals in the ſtreet, and their ſtockings in the houſe.

In the progreſs of time, it appears ſervile to uncover one's ſelf. The grandees of Spain claim the right of appearing covered before the king, to ſhow that they are not ſo much ſubjected to him as the reſt of the nation; and (this writer obſerves) we may remark, that the Engliſh do not uncover their heads ſo much as the other nations of Europe. In a word, there is not a nation (obſerves the humorous Montaigne), even to the people who, when they ſalute, turn their backs on their friends, but that can be juſtified in their cuſtoms. It muſt be obſerved of the Europeans, that they are lovers of luxurious actions, and thus make all their ceremonies farcical. The greater part pull the fingers till they crack. Snelgrave gives an odd repreſentation of the embaſſy which the king of Dahomy ſent to him. The ceremonies of ſalutation conſiſted in the moſt ridiculous contortions. When two negro monarchs viſit, they embrace in ſnapping three times the middle finger.

Barbarous nations frequently imprint on their ſalutations the diſpoſitions of their character. When the inhabitants of Carmena (ſays Athenæus) would ſhow a peculiar mark of eſteem, they breathed a vein, and preſented for the beverage of their friend the blood as it iſſued. The Franks tore hair from their head, and preſented it to the perſon they ſaluted. The ſlave cut his hair, and offered it to his maſter. The Chineſe are ſingularly affected in their perſonal civilities: they even calculate the number of their reverences. Theſe are their moſt remarkable poſtures. The men move their hands in an affectionate manner, while they are joined together on the breaſt, and bow their head a little. If they reſpect a perſon, they raiſe their hands joined, and then lower them to the earth in bending the body. If two perſons meet after a long ſeparation, they both fall on their knees, and bend the face to the earth, and this ceremony they repeat two or three times. Surely we may differ here with the ſentiment of Montaigne, and confeſs this ceremony to be ridiculous. It ariſes from their national affectation. They ſubſtitute artificial ceremonies for natural actions. Their expreſſions mean as little as their ceremonies. If a Chineſe is aſked how he finds himſelf in health? he anſwers, *Very well; thanks to your abundant felicity.* If they would tell a man that he looks well, they ſay, *Proſperity is painted on your face*: or, *Your air announces your happineſs.* If you render them any ſervice, they ſay, *My thanks ſhould be immortal.* If you praiſe them, they anſwer, *How ſhall I dare to perſuade myſelf of what you ſay of me?* If you dine with them, they tell you at parting, *We have not treated you with ſufficient diſtinction.* The various titles they invent for each other it would be impoſſible to tranſlate.

It is to be obſerved, that all theſe anſwers are preſcribed by the Chineſe ritual, or academy of compliments. There are determined the number of bows; the expreſſions to be employed; the genuflections; and the inclinations which are to be made to the right or left hand: the ſalutations of the maſter before the chair where the ſtranger is to be ſeated, for he ſalutes it moſt profoundly, and wipes the duſt away with the ſkirts of his robe; all theſe and other things are noticed, even to the ſilent geſtures, by which you are entreated to enter the houſe. The lower claſs of people are equally nice in theſe punctilios; and ambaſſadors paſs 40 days in practiſing them before they are enabled to appear at court. A tribunal of ceremonies has been erected, and every day very odd decrees are iſſued, to which the Chineſe moſt religiouſly ſubmit.

The marks of honour are frequently arbitrary; to be ſeated, with us, is a mark of repoſe and familiarity; to ſtand up, that of reſpect. There are countries, however, in which princes will only be addreſſed by perſons who are ſeated, and it is conſidered as a favour to be permitted to ſtand in their preſence. This cuſtom prevails in deſpotic countries: a deſpot cannot ſuffer without diſguſt the elevated figure of his ſubjects: he is

pleased to bend their bodies with their genius: his presence must lay those who behold him prostrate on the earth: he desires no eagerness, no attention; he would only inspire terror.

The pope makes no reverence to any mortal except the emperor, to whom he stoops a very little when he permits him to kiss his lips.

SALUTE, in military matters, a discharge of artillery, or small arms, or both, in honour of some person of extraordinary quality. The *colours* likewise salute royal persons, and generals commanding in chief; which is done by lowering the point to the ground. In the field, when a regiment is to be reviewed by the king or his general, the drums beat a march as he passes along the line, and the officers salute one after another, bowing their half-pikes or swords to the ground; then recover and take off their hats. The ensigns salute all together, by lowering their colours.

SALUTE, in the navy, a testimony of deference or homage rendered by the ships of one nation to another, or by ships of the same nation to a superior or equal.

This ceremony is variously performed, according to the circumstances, rank, or situation, of the parties. It consists in firing a certain number of cannon, or volleys of small arms; in striking the colours or top-sails; or in one or more general shouts of the whole ship's crew, mounted on the masts or rigging for that purpose.

The principal regulations with regard to salutes in the royal navy are as follow:

"When a flag-officer salutes the admiral and commander in chief of the fleet, he is to give him fifteen guns; but when captains salute him, they are to give him seventeen guns. The admiral and commander in chief of the fleet is to return two guns less to flag-officers, and four less to captains. Flag-officers saluting their superior or senior officer, are to give him thirteen guns. Flag-officers are to return an equal number of guns to flag-officers bearing their flags on the same mast, and two guns less to the rest, as also to captains.

"When a captain salutes an admiral of the white or blue, he is to give him fifteen guns; but to vice and rear admirals, thirteen guns. When a flag-officer is saluted by two or more of his majesty's ships, he is not to return the salute till all have finished, and then to do it with such a reasonable number of guns as he shall judge proper.

"In case of the meeting of two squadrons, the two chiefs only are to exchange salutes. And if single ships meet a squadron consisting of more than one flag, the principal flag only is to be saluted. No salutes shall be repeated by the same ships, unless there has been a separation of six months at least.

"None of his majesty's ships of war, commanded only by captains, shall give or receive salutes from one another, in whatsoever part of the world they meet.

"A flag officer commanding in chief shall be saluted, upon his first hoisting his flag, by all the ships present, with such a number of guns as is allowed by the first, third, or fifth articles.

"When any of his majesty's ships shall meet with any ship or ships belonging to any foreign prince or state, within his majesty's seas (which extend to Cape Finisterre), it is expected, that the said foreign ships do strike their top-sail, and take in their flag, in acknowledgement of his majesty's sovereignty in those seas: and if any shall refuse or offer to resist, it is enjoined to all flag-officers and commanders to use their utmost endeavours to compel them thereto, and not suffer any dishonour to be done to his majesty. And if any of his majesty's subjects shall so much forget their duty, as to omit striking their top sail in passing by his majesty's ships, the name of the ship and master, and from whence, and whither bound, together with affidavits of the fact, are to be sent up to the secretary of the admiralty, in order to their being proceeded against in the admiralty court. And it is to be observed, that in his majesty's seas, his majesty's ships are in nowise to strike to any; and that in other parts, no ship of his majesty's is to strike her flag or top-sail to any foreigner, unless such foreign ship shall have first struck, or at the same time strike, her flag or top-sail to his majesty's ship.

"The flag-officers and commanders of his majesty's ships are to be careful to maintain his majesty's honour upon all occasions, giving protection to his subjects, and endeavouring, what in them lies, to secure and encourage them in their lawful commerce; and they are not to injure, in any manner, the subjects of his majesty's friends and allies

"If a foreign admiral meets with any of his majesty's ships, and salutes them, he shall receive gun for gun If he be a vice-admiral, the admiral shall answer with two guns less. If a rear-admiral, the admiral and vice-admiral shall return two less. But if the ship be commanded by a captain only, the flag-officer shall give two guns less, and captains an equal number.

"When any of his majesty's ships come to an anchor in a foreign port or road, within cannon-shot of its forts, the captain may salute the place with such a number of guns as have been customary, upon good assurance of having the like number returned, but not otherwise. But if the ship bears a flag, the flag-officer shall first carefully inform himself how flags of like rank, belonging to other crowned heads, have given or returned salutes, and to insist upon the same terms of respect.

"It is allowed to the commanders of his majesty's ships in foreign parts, to salute the persons of any admirals, commanders in chief, or captains of ships of war of foreign nations, and foreign noblemen, or strangers of quality, as also the factories of the king's subjects, coming on board to visit the ship; and the number of guns is left to the commander, as shall be suitable to the occasion and the quality of the persons visiting; but he is nevertheless to remain accountable for any excesses in the abuse of this liberty. If the ship visited be in company with other ships of war, the captain is not to make use of the exceptions allowed in the preceding articles but with leave and consent of the commander in chief or the senior captain.

"Merchant ships, whether foreigners or belonging to his majesty's subjects, saluting the admiral of the fleet, shall be answered by six guns less; when they salute any other flag ships, they shall be answered by four guns less; and if they salute men of war commanded by captains, they shall be answered by two guns less If several merchant ships salute in company, no return is to be made till all have saluted, and then by

Saluzzo || Samaneans.

such a number of guns as shall be thought proper; but though the merchant-ships should answer, there shall be no second return ——

"None of his majesty's ships of war shall salute any of his majesty's forts or castles in Great Britain or Ireland, on any pretence whatsoever."

SALUZZO, called by the French *Saluces*, a town and castle of Italy, in Piedmont, and capital of a marquisate of the same name, with a bishop's see. It is situated on an eminence at the foot of the Alps near the river Po, in E. Long. 18. 27. N. Lat. 44. 35. It is subject to the king of Sardinia.

SALUZZO, the marquisate of, a province of Piedmont in Italy, bounded on the north by Dauphiny and the province of the Four Valleys, on the east by those of Saviglano and Fossano, on the south by that of Cona and the county of Nice, and on the west by Barcelonetta. It was ceded to the duke of Savoy in 1601.

SAMA, a town and fort in the hands of the Dutch on the Gold Coast of Africa, stands on an eminence, the fort being watered by the pleasant river of St George, that discharges itself into the sea. The town contains above 200 houses, which seem to form three distinct villages, one of which is immediately under the cannon of the Dutch fort St Sebastian. Des Marchais deems this town to be one of the largest on the whole coast, Barbot likewise agreeing with him in its situation, extent, and number of inhabitants. The sole employment of the natives is fishing; a circumstance which easily accounts for their poverty. The government of this place is republican, the magistrates having the supreme power, being subject to periodical changes, and under the authority of the king of Gavi, who seldom however interferes in the affairs of the state. This prince resides some leagues distant from the sea, is rich, and much respected by his neighbours.

SAMANEANS, in antiquity, a kind of magi or philosophers, have been confounded by some with the Bramins. They proceeded from Ariana, a province of Persia, and the neighbouring countries, spread themselves in India, and taught new doctrines.

The Bramins, before their arrival, it is said, were in the highest period of their glory, were the only oracles of India, and their principal residence was on the banks of the Ganges, and in the adjacent mountains; while the Samaneans were settled towards the Indus. Others say, that the Bramins acquired all their knowledge from the Samaneans, before whose arrival it would be difficult to prove that the Bramins were the religious teachers of the Indians. The most celebrated and ancient of the Samanean doctors was Boutta, or Budda, who was born 683 years before Christ. His scholars paid him divine honours; and his doctrine, which consisted chiefly in the transmigration of souls, and in the worship of cows, was adopted not only in India, but also in Japan, China, Siam, and Tartary. It was propagated, according to M. de Sainte Croix, in Thibet, in the 8th century, and succeeded there the ancient religion of Zamolxis. The Samaneans, or Buddists, were entirely destroyed in India by the jealous rage of the Bramins, whose absurd practices and fables they affected to treat with contempt; but several of their books are still preserved and respected on the coasts of Malabar.

Sama || Samari

We are told, too, that several of the Bramin orders have adopted their manner of living, and openly profess the greatest part of their doctrines. *L'Ezour Vedam, ou Ancien Comment du Vedam*, published by M. de S. Croix, Paris 1779. See BRAMINS.

SAMAR, a Spanish island not far from Manilla in the East Indies, is called *Samar* on the side which looks towards the other isles, and *Ibabao* on that next the ocean. It is like the trunk of a man's body, without head or legs. Its greatest length, from Cape Baliquaton, which, with the point of Manilla, makes the strait of St Bernardino, in 13 degrees 30 minutes north latitude, extends to that of Guignan in 11 degrees towards the south. The other two points, making the greatest breadth of the island, are Cabo de Spirito Santo, or *Cape of the Holy Ghost*, the high mountains of which are the first discovered by ships from New Spain; and that which lying opposite to Leyte westward, makes another strait, scarce a stone's throw over. The whole compass of the island is about 130 leagues. Between Guignan and Cape Spirito Santo is the port of Borognon, and not far from thence those of Palapa and Catubig, and the little island of Bin, and the coast of Catarman. Vessels from countries not yet discovered are very frequently cast away on the before-mentioned coast of Palapa. Within the straits of St Bernardino, and beyond Baliquaton, is the coast of Samar, on which are the villages of Ibatan, Bangahon, Cathalogan, Paranos, and Calviga. Then follows the strait of St Juanillo, without which, standing eastward, appears the point and little island of Guignan, where the compass of the island ends. It is mountainous and craggy, but fruitful in the few plains there are. The fruits there are much the same as that of LEYTE; but there is one particular sort, called by the Spaniards *chicoy*, and by the Chinese, who put a great value on it, *seyzu*, without kernels.

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SAMARA, in botany; a genus of the monogynia order, belonging to the tetrandria class of plants. The calyx is quadripartite, the corolla tetrapetalous; the stamina immersed in the base of the petal; the stigma funnel-shaped.

SAMARCAND, or SARMACAND, an ancient and famous town of Asia, capital of the kingdom of the same name in the country of the Usbeck Tartars, with a castle and a famous university. The houses are built with stones, and it carries on a trade in excellent fruits. It is pleasantly seated near the river Sogde, a branch of the Amu, E. Long. 69. 0. N. Lat. 39. 50. This town was the capital of the kingdom of Sogdia in the time of Alexander the Great, when it was called *Maracanda*. It was afterwards the capital of the empire of Tamerlane the Great. In the time of Jenghiz Khan, it was forced to yield to the arms of that cruel conqueror; by whom the garrison, amounting to 30,000 men, were butchered; 30,000 of the inhabitants, with their wives and children, were presented to his generals; the rest were permitted to live in the city, on paying a tribute of 300,000 dinars or crowns of gold.

SAMARIA (anc. geog.), one of the three larger Cisjordan districts, situated in the middle between Galilee to the north and Judea to the south, beginning at the village Ginæa, in the Campus Magnus, and ending at the toparchy called *Acrobatena* (Josephus). Its soil

ſoil differing in nothing from that of Judea; both equally hilly and champaign, both equally fertile in corn and fruit (id.) Called the *kingdom of Samaria* or *Ephraim* (Bible); compriſing the ten tribes, and conſequently all the country to the north of Judea and eaſt and weſt of Jordan.

SAMARIA, the capital city of the kingdom of Samaria, or of the ten tribes. It was built by Omri king of Iſrael, who began to reign in the year of the world 3079, and died 3086 (1 Kings xvi. 24.) He bought the hill Samaria of Shemer for two talents of ſilver, or for the ſum of L. 684 : 7 : 6. It took the name of *Samaria* from Shemer the owner of the hill; though ſome think there were already ſome beginnings of a city, becauſe, before the reign of Omri, there is mention made of Samaria (1 Kings xiii. 32.) in the year of the world 3030. But others take this for a prolepſis, or an anticipation, in the diſcourſe of the man of God, who ſpeaks of Samaria under the reign of Jeroboam.

However this be, it is certain that Samaria was no conſiderable place, and did not become the capital city of the kingdom of Iſrael till after the reign of Omri. Before him, the kings of Iſrael dwelt at Shechem, or at Tirzah. Samaria was ſituated upon an agreeable and fruitful hill, and an advantageous ſituation, and was 12 miles from Dothaim, 12 from Merrom, and four from Atharoth. Joſephus ſays, it was a day's journey from Jeruſalem. Beſides, though it was built upon an eminence, yet it muſt have water in abundance; ſince we find medals ſtruck in this city, whereon is repreſented the goddeſs Aſtarte treading a river under foot; which proves it to have been well watered. And Joſephus obſerves, that when it was taken by John Hircanus the prince of the Jews, he entirely demoliſhed it, and cauſed even the brook to flow over its ruins, to obliterate all the footſteps of it.

The kings of Samaria omitted nothing to make this city the ſtrongeſt, the fineſt, and the richeſt, that was poſſible. Ahab built there a palace of ivory (1 Kings xxii. 39.), that is, in which there were many ornaments of ivory. Amos deſcribes Samaria under Jeroboam II. as a city ſunk into all exceſſes of luxury and effeminacy (Amos iii. 15. and iv. 1, 2).

Ben-hadad king of Syria built public places or ſtreets in Samaria (1 Kings xx. 34.) probably for traffic, where his people dwelt to promote trade. His ſon Ben-hadad beſieged this place under the reign of Ahab (1 Kings xx. 1, 2, 3, &c.) in the year of the world 3103.

The following year, Ben-hadad brought an army into the field, probably with a deſign to march againſt Samaria: but his army was again cut in pieces. Some years after this, Ben-hadad came a third time, lay down before Samaria, and reduced it to ſuch neceſſities by famine, that a mother was there forced to eat her own child; but the city was relieved by a ſenſible effect of the protection of God.

Laſtly, it was beſieged by Shalmaneſer king of Aſſyria, in the ninth year of Hoſhea king of Iſrael (2 Kings xvii. 6, 7, &c.), which was the fourth of Hezekiah king of Judah. It was taken three years after, in the year of the world 3283. The prophet Hoſea ſpeaks of the cruelties exerciſed by Shalmaneſer againſt the beſieged (Hoſ. x. 4, 8, 9. xiv. 1.); and Micah ſays, that this city was reduced to a heap of ſtones (Mic. i. 6). The Cuthites that were ſent by Eſar-haddon to inhabit the country of Samaria, did not think it worth their while to repair the ruins of this city; they dwelt at Shechem, which they made the capital city of their ſtate. They were ſtill upon this footing when Alexander the Great came into Phœnicia and Judea. However, the Cuthites had rebuilt ſome of the houſes of Samaria, even from the time of the return from the captivity, ſince Ezra then ſpeaks of the inhabitants of Samaria (Ezra iv. 17. Nehem. iv. 2.); and that the Samaritans, being jealous of the favours that Alexander the Great had conferred on the Jews, revolted from him, while the prince was in Egypt, and burnt Andromachus alive, whom Alexander had left governor of Syria. Alexander marched againſt them, took Samaria, and put the Macedonians to inhabit it; giving the country round it to the Jews; and to encourage them to cultivate it, he granted them an exemption from tribute. The kings of Egypt and Syria, who ſucceeded Alexander, deprived them of the property of this country.

But Alexander Balas king of Syria reſtored to Jonathan Maccabæus the cities of Lydda, Ephraim, and Ramatha, which he cut off from the country of Samaria (1 Mac. x. 30, 38, and xi. 28, 34.) Laſtly, the Jews re-entered into the full poſſeſſion of this whole country under John Hircanus the Aſmonæan, who took Samaria, and ruined it in ſuch a manner, according to Joſephus, that he made the river run through its ruins. It continued in this condition to the year of the world 3947, when Aulus Gabinius, the proconſul of Syria, rebuilt it, and gave it the name of Gabiniana. But it was yet but very inconſiderable, till Herod the Great reſtored it to its ancient luſtre, and gave it the Greek name of Sebaſte, which in Latin is Augusta, in honour of the emperor Auguſtus, who had given him the property of this place.

The ſacred authors of the New Teſtament ſpeak but little of Samaria; and when they do mention it, it is rather in reſpect of the country about it, than of the city itſelf. (See Luke xvii. 11. John iv. 4, 5.)—It was there our Lord had the converſation with the woman of Samaria, that is, with a Samaritan woman of the city of Sychar. After the death of St Stephen, (Acts viii. 1, 2, 3.), when the diſciples were diſperſed through the cities of Judea and Samaria, St Philip the deacon withdrew into the city of Samaria, where he made ſeveral converts. When the apoſtles heard that this city had received the word of God, they ſent Peter and John thither, to communicate the Holy Ghoſt to ſuch as had been baptized. It was there that they found Simon Magus, who offered money to the apoſtles, being in hopes to buy this power of communicating the Holy Ghoſt. Samaria is never called Sebaſte in the books of the New Teſtament, though ſtrangers hardly knew it but by this name. St Jerome ſays, that it was thought Obadiah was buried at Samaria. They alſo ſhewed there the tombs of Eliſha and of St John the Baptiſt. There are found many ancient medals that were ſtruck at Sebaſte, or Samaria, and ſome biſhops of this city have ſubſcribed to the ancient councils.

SAMARITANS. We have already ſpoken of the Samaritans under the article CUTH. The Samaritans

Samaritans are the people of the city of Samaria, and the inhabitants of the province of which Samaria was the capital city. In this sense, it should seem that we might give the name of Samaritans to the Israelites of the ten tribes, who lived in the city and territory of Samaria. However, the sacred authors commonly give the name of Samaritans only to those strange people whom the kings of Assyria sent from beyond the Euphrates to inhabit the kingdom of Samaria, when they took away captive the Israelites that were there before. Thus we may fix the epoch of the Samaritans at the taking of Samaria by Salmaneser, in the year of the world 3283. This prince carried away captive the Israelites that he found in the country, and assigned them dwellings beyond the Euphrates, and in Assyria, (2 Kings xvii. 24.) He sent other inhabitants in their stead, of which the most considerable were the Cuthites, a people descended from Cush, and who are probably of the number of those whom the ancients knew by the name of Scythians

After Salmaneser, his successor Esar-haddon was informed, that the people which had been sent to Samaria were infested by lions that devoured them, (2 Kings xvii. 25.); this he imputed to the ignorance of the people in the manner of worshipping the god of the country. Wherefore Esar-haddon sent a priest of the God of Israel that he might teach them the religion of the Hebrews. But they thought they might blend this religion with that which they professed before; so they continued to worship their idols as before, in conjunction with the God of Israel, not perceiving how absurd and incompatible these two religions were.

It is not known how long they continued in this state; but at the return from the captivity of Babylon, it appears they had entirely quitted the worship of their idols; and when they asked permission of the Israelites that they might labour with them at the rebuilding of the temple of Jerusalem, they affirmed, that from the time that Esar-haddon had brought them into this country they had always worshipped the Lord, (Ezrah iv. 1, 2, 3.) And indeed, after the return from the captivity, the scripture does not any where reproach them with idolatrous worship, though it does not dissemble either their jealousy against the Jews, nor the ill offices they had done them at the court of Persia, by their slanders and calumnies, or the stratagems they contrived to hinder the repairing of the walls of Jerusalem.—(Nehem. ii. 10, 19. iv. 2, &c. vi. 1, 2, &c.)

It does not appear that there was any temple in Samaria, in common to all these people who came thither from beyond the Euphrates, before the coming of Alexander the Great into Judea. Before that time, every one was left to his own discretion, and worshipped the Lord where he thought fit. But they presently comprehended, from the books of Moses which they had in their hands, and from the example of the Jews their neighbours, that God was to be worshipped in that place only which he had chosen. So that since they could not go to the temple of Jerusalem, which the Jews would not allow of, they bethought themselves of building a temple of their own upon mount Gerizim, near the city of Shechem, which was then their capital. Therefore Sanballat, the governor of the Samaritans, applied himself to Alexander, and told him he had a son-in-law, called Manasses, son to Jaddus the high-priest of the Jews, who had retired to Samaria with a great number of other persons of his own nation; that he desired to build a temple in this province, where he might exercise the high-priesthood; that this undertaking would be to the advantage of the king's affairs, because in building a temple in the province of Samaria, the nation of the Jews would be divided, who are a turbulent and seditious people, and by such a division would be made weaker, and less in a condition to undertake new enterprizes.

Alexander readily consented to what Sanballat desired, and the Samaritans presently began their building of the temple of Gerizim, which from that time they have always frequented, and still frequent to this day, as the place where the Lord intended to receive the adoration of his people. It is of this mountain, and of this temple, that the Samaritan woman of Sychar spoke to our Saviour, (John iv. 20.) See GARIZIM.

The Samaritans did not long continue under the obedience of Alexander. They revolted from him the very next year, and Alexander drove them out of Samaria, put Macedonians in their room, and gave the province of Samaria to the Jews. This preference that Alexander gave to the Israelites contributed not a little to increase that hatred and animosity that had already obtained between these two people. When any Israelite had deserved punishment for the violation of some important point of the law, he presently took refuge in Samaria or Shechem, and embraced the way of worship according to the temple of Garizim. When the Jews were in a prosperous condition, and affairs were favourable to them, the Samaritans did not fail to call themselves Hebrews, and pretended to be of the race of Abraham. But no sooner were the Jews fallen into discredit or persecution, but the Samaritans immediately disowned them, would have nothing in common with them, acknowledged themselves to be Phœnicians originally, or that they were descended from Joseph and Manasseh his son. This used to be their practice in the time of Antiochus Epiphanes.

The Samaritans, having received the Pentateuch, or the five books of Moses, from the priest that was sent by Esar-haddon, have preserved it to this day, in the same language and character it was then, that is, in the old Hebrew or Phœnician character, which we now call the Samaritan, to distinguish it from the modern Hebrew character, which at present we find in the books of the Jews. These last, after their captivity, changed their old characters, and took up those of the Chaldee, which they had been used to at Babylon, and which they continue still to use. It is wrong, says F. Calmet, to give this the name of the Hebrew character, for that can be said properly only of the Samaritan text. The critics have taken notice of some variations between the Pentateuch of the Jews and that of the Samaritans; but these varieties of reading chiefly regard the word Gerizim, which the Samaritans seem to have purposely introduced to favour their pretensions, that mount Gerizim was the place in which the Lord was to be adored. The other various readings are of small importance.

The religion of this people was at first the Pagan. Every one worshipped the deity they had been used to in their own country (2 Kings xvii. 25, 30, 31.) The

The Babylonians worshipped Succoth-benoth; the Cuthites, Nergal; the Hamathites, Ashima; the Avites, Nibhaz and Tartak; the Sepharvites, Adrammelech and Anammelech. If we would enumerate all the names of false gods to whom the Samaritans have paid a sacrilegious worship, we should have enough to do. This matter is sufficiently perplexed, by reason of the different names by which they were adored by different nations, insomuch that it would be almost impossible to clear up this affair. See SUCCOTH-BENOTH, &c. Afterwards, to this profane worship the Samaritans added that of the Lord, the God of Israel, (2 Kings xvii. 29, 30, 31, 32.) They gave a proof of their little regard to this worship of the true God, when under Antiochus Epiphanes they consecrated their temple at Gerizim to Jupiter Argivus. In the time of Alexander the Great, they celebrated the sabbatical year, and consequently the year of jubilee also. We do not know whether they did it exactly at the same time with the Jews, or whether they observed any other epoch; and it is to little purpose that some critics have attempted to ascertain the first beginning of it. Under the kings of Syria they followed the epoch of the Greeks, or that of the Seleucidæ, as other people did that were under the government of the Seleucidæ. After that Herod had re-established Samaria, and had given it the name of Sebaste, the inhabitants of this city, in their medals, and all public acts, took the date of this new establishment. But the inhabitants of Samaria, of which the greater part were Pagans or Jews, were no rule to the other Samaritans, who probably reckoned their years according to the reigns of the emperors they were subject to, till the time they fell under the jurisdiction of the Mahometans, under which they live at this day; and they reckon their year by the Hegira, or, as they speak, according to the reign of Ishmael, or the Ishmaelites. Such of our readers as desire to be further acquainted with the history of the ancient Samaritans, we refer to the works of Josephus, where they will find that subject largely treated of.

As to their belief, it is objected to them, that they receive only the Pentateuch, and reject all the other books of scripture, chiefly the prophets, who have more expresly declared the coming of the Messiah.—They have also been accused of believing God to be corporeal, of denying the Holy Ghost, and the resurrection of the dead. Jesus Christ reproaches them (John iv. 22.) with worshipping they know not what; and in the place already referred to he seems to exclude them from salvation, when he says, that "Salvation is of the Jews." True it is, that these words might only signify, that the Messiah was to proceed from the Jews; but the crime of schism alone, and a separation from the true church, was sufficient to exclude them from salvation. The Samaritan woman is a sufficient testimony that the Samaritans expected a Messiah, who they hoped would clear up all their doubts (John iv. 25.) Several of the inhabitants of Shechem believed at the preaching of Jesus Christ, and several of Samaria believed at that of St Philip; but it is said, they soon fell back to their former errors, being perverted by Simon Magus.

The Samaritans at present are very few in number. Joseph Scaliger, being curious to know their usages, wrote to the Samaritans of Egypt, and to the high-priest of the whole sect who resided at Neapolis in Samaria. They returned two answers to Scaliger, dated in the year of the Hegira 998. These were preserved in the French king's library, and were translated into Latin by father Morin, and printed in England in the collection of that father's letters, in 1682, under the title of *Antiquitates Ecclesiæ Orientalis*. By these letters it appears, that they believe in God, in his servant Moses, the holy law, the mountain Gerizim, the house of God, the day of vengeance and of peace; that they value themselves upon observing the law of Moses in many points more rigidly than the Jews themselves.—They keep the sabbath with the utmost strictness required by the law, without stirring from the place they are in, but only to the synagogue. They go not out of the city, and abstain from their wives on that day. They never delay circumcision beyond the eighth day. They still sacrifice to this day in the temple on mount Gerizim, and give to the priest what is enjoined by the law. They do not marry their own nieces, as the Jews do, nor do they allow themselves a plurality of wives. Their hatred for the Jews may be seen through all the history of Josephus, and in several places of the New Testament. The Jewish historian informs us, that under the government of Coponius, one passover night, when they opened the gates of the temple, some Samaritans had scattered the bones of dead men there, to insult the Jews, and to interrupt the devotion of the festival. The evangelists shew us, that the Jews and Samaritans held no correspondence together (John iv. 9.) "The Jews have no dealings with the Samaritans." And the Samaritan woman of Sychar was much surprised that Jesus talked with her, and asked drink of her, being a Samaritan. When our Saviour sent his apostles to preach in Judea, he forbad them to enter into the Samaritan cities, (Matt. x. 5.); because he looked upon them as schismatics, and as strangers to the covenant of Israel. One day when he sent his disciples to provide him a lodging in one of the cities of the Samaritans, they would not entertain him, because they perceived he was going to Jerusalem. (Luke ix. 52. 53.) "Because his face was as though he would go to Jerusalem." And when the Jews were provoked at the reproaches of Jesus Christ, they told him he was a Samaritan (John viii. 48.), thinking they could say nothing more severe against him. Josephus relates, that some Samaritans having killed several Jews as they were going to the feast at Jerusalem, this occasioned a kind of a war between them. The Samaritans continued their fealty to the Romans, when the Jews revolted from them; yet they did not escape from being involved in some of the calamities of their neighbours.

There are still at this day some Samaritans at Shechem, otherwise called Naplouse. They have priests there, who say they are of the family of Aaron. They have a high-priest, who resides at Shechem, or at Gerizim, who offers sacrifices there, and who declares the feast of the passover, and all the other feasts, to all the dispersed Samaritans. Some of them are to be found at Gaza, some at Damascus, and some at Grand Cairo.

SAMBUCUS, ELDER, in botany: A genus of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the

Sambucus || Samiels.

43d order, *Dumosæ*. The calyx is quinquepartite; the corolla quinquefid; the berry trispermous.

The most remarkable species are, 1. The nigra, or common black elder-tree, rises with a tree-stem, branching numerously into a large spreading head, twenty or thirty feet high; pinnated leaves, of two or three pair of oval lobes and an odd one; and large five-parted umbels of white flowers towards the ends of the branches, succeeded by bunches of black and other different coloured berries, in the varieties; which are—Common black-berried elder-tree—White-berried elder—Green-berried elder—Laciniated, or parsley-leaved elder, having the folioles much laciniated, so as to resemble parsley leaves—Gold-striped-leaved elder—Silver-striped elder—Silver-dusted elder. 2. The racemosa, racemose red-berried elder, rises with a tree-like stem, branching ten or twelve feet high, having reddish-brown branches and buds; pinnated leaves of six or seven oval deeply-sawed lobes; and compound, oval, racemous, clusters of whitish-green flowers, succeeded by oval clusters of red berries. This is a resident of the mountainous parts of the south of Europe, and is retained in our gardens as a flowering shrub, having a peculiar singularity in its oval-clustered flowers and berries. 3. The Canadensis, or Canada shrubby elder, rises with a shrubby stem, branching eight or ten feet high, having reddish shoots; somewhat bipinnated leaves, often ternate below, the other composed of five, seven, or nine oval lobes; and towards the ends of the branches, cymose quinquepartite umbels of flowers, succeeded by blackish red berries. All the sorts of elder are of the deciduous tribe, very hardy, and grow freely anywhere; are generally free shooters, but particularly the common elder and varieties, which make remarkably strong, jointed shoots, of several feet in length, in one season; and they flower mostly in summer, except the racemose elder, which generally begins flowering in April; and the branches being large, spreading, and very abundant, are exceedingly conspicuous; but they emit a most disagreeable odour. The flowers are succeeded in the most of the sorts by large bunches of ripe berries in autumn, which, although very unpalateable to eat, are in high estimation for making that well known cordial liquor called *elder wine*, particularly the common black-berried elder. The merit of the elder in gardening may be both for use and ornament, especially in large grounds.

SAMIAN EARTH, in the materia medica, the name of two species of marl used in medicine, viz. 1. The white kind, called by the ancients *collyrium samium*, being astringent, and therefore good in diarrhœas, dysenteries, and hæmorrhagies; they also used it externally in inflammations of all kinds. 2. The brownish-white kind, called *aster samius* by Dioscorides; this also stands recommended as an astringent.

SAMIELS, the Arabian name of a hot wind peculiar to the desert of Arabia. It blows over the desert in the months of July and August from the north-west quarter, and sometimes it continues with all its violence to the very gates of *Bagdad*, but never affects any body within the walls. Some years it does not blow at all, and in others it appears six, eight, or ten times, but seldom continues more than a few minutes at a time. It often passes with the apparent quickness of lightning. The Arabians and Persians, who are acquainted with the appearance of the sky at or near the time this wind ariseth, have warning of its approach by a thick haze, which appears like a cloud of dust arising out of the horizon; and they immediately upon this appearance throw themselves with their faces to the ground, and continue in that position till the wind is passed, which frequently happens almost instantaneously; but if, on the contrary, they are not careful or brisk enough to take this precaution, which is sometimes the case, and they get the full force of the wind, it is instant death.

Ives's Voyage from England to India in 1754.

The above method is the only one which they take to avoid the effects of this fatal blast; and when it is over, they get up and look round them for their companions; and if they see any one lying motionless, they take hold of an arm or leg, and pull and jerk it with some force; and if the limb thus agitated separates from the body, it is a certain sign that the wind has had its full effect; but if, on the contrary, the arm or leg does not come away, it is a sure sign there is life remaining, although to every outward appearance the person is dead; and in that case they immediately cover him or them with clothes, and administer some warm diluting liquor to cause a perspiration, which is certainly but slowly brought about.

The Arabs themselves can say little or nothing about the nature of this wind, only that it always leaves behind it a very strong sulphureous smell, and that the air at these times is quite clear, except about the horizon, in the north-west quarter, before observed, which gives warning of its approach. We have not been able to learn whether the dead bodies are scorched, or dissolved into a kind of gelatinous substance; but from the stories current about them, there has been frequent reason to believe the latter; and in that case such fatal effects may be attributed rather to a noxious vapour than to an absolute and excessive heat. The story of its going to the gates of Bagdad and no farther may be reasonably enough accounted for, if the effects are attributed to a poisonous vapour, and not an excessive heat. The above mentioned wind, Samiel, is so well known in the neighbourhood of Bagdad and Bassora, that the very children speak of it with dread.

SAMOGITIA, a province of Poland, bounded on the north by Courland, on the east by Lithuania, on the west by the Baltic Sea, and on the south by Regal Prussia, being about 175 miles in length and 125 in breadth. It is full of forests and very high mountains, which feed a great number of cattle, and produce a large quantity of honey. There are also very active horses, in high esteem. The inhabitants are clownish, but honest; and they will not allow a young woman to go out in the night without a candle in her hand and two bells at her girdle. Rossenna and Wormia are the principal places.

SAMOIEDA, a country of the Russian empire, between Asiatic Tartary and Archangel, lying along the sea-coast as far as Siberia. The inhabitants are so rude a people that they can hardly pretend to humanity, except in their face and figure: they have little understanding, and in many things resemble brutes, for they will eat carrion of every kind. They travel on the snow on sledges, drawn with an animal like a reindeer, but with the horns of a stag. Those who have seen them affirm, that no people on the earth make such shocking figures: their stature is short; their shoulders and

Samolus || Sampan.

and faces are broad, with flat broad noses, great blubber hanging lips, and staring eyes; their complexion is dark, their hair long and as black as pitch, and they have very little beards; and it is said that all the Samoied women have black nipples. If they have any religion at all, it is idolatry, though there has been some attempts of late to convert them. Their huts are made of birch bark sewed together, which is laid upon stakes set in the ground, and at the top is a hole to let out the smoke; the fire is made in the middle, and both men and women lie naked round them all night.—They have little regard to the nearness of kin, and take as many wives as they can keep: their only employment is hunting and fishing.

SAMOLUS, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 21st order, *Precæ*. The corolla is salver-shaped, the stamina surrounded by small scales at its throat. The capsule is unilocular inferior.

SAMOS (anc. geog.), an island at no great distance from the promontory Mycale, on the continent of the Hither Asia, and opposite to Ephesus; the distance only seven stadia (Strabo); a free island, in compass 87 miles (Pliny); or 100 (Isidorus): with a cognominal town (Ptolemy, Horace); famous for the worship and a temple of Juno, with a noted asylum (Virgil, Strabo, Tacitus); and hence their coin exhibited a peacock (Athenæus): The country of Pythagoras, who, to avoid the oppression of tyrants, retired to Italy, the land of freedom. Samos, though not so happy in producing wine, which Strabo wonders at, all the adjoining islands yielding a generous sort, yet abounds in all the necessaries of life. The *Vasa Samia*, among earthen ware, were held in high repute. *Samii*, the people (Ovid).—The island is now in the hands of the Turks. It is about 32 miles in length, and 22 in breadth, and extremely fertile. The inhabitants live at their ease, their taxation by the Turks being moderate. The women are very nasty and ugly, and they never shift above once a month. They are clothed in the Turkish manner, except a red coif, and their hair hanging down their backs, with plates of silver or block-tin fastened to the ends.—They have abundance of melons, lentils, kidney-beans, and excellent muskadine grapes. They have white figs four times as big as the common sort, but not so well tasted. Their silk is very fine, and their honey and wax admirable; besides which, their poultry are excellent: they have iron mines, and most of the soil is of a rusty colour: they have also emery stone, and all the mountains are of white marble. The inhabitants are about 12,000, who are almost all Greeks; and the monks and priests occupy most part of the island. They have a bishop who resides at Cora. See POLYCRATES.

Osbeck's Voyage to China and the East Indies.

SAMPAN, is a Chinese boat without a keel, looking almost like a trough; they are made of different dimensions, but are mostly covered. These boats are as long as sloops, but broader, almost like a baking trough; and have at the end one or more decks of bamboo sticks: the cover or roof is made of bamboo sticks, arched over in the shape of a grater; and may be raised or lowered at pleasure: the sides are made of boards, with little holes, with shutters instead of windows: the boards are fastened on both sides to posts, which have notches like steps on the insides, that the roof may be let down, and rest on them: on both ends of the deck are commonly two little doors, at least there is one at the hinder-most end. A fine white smooth carpet spread up as far as the boards makes the floor, which in the middle consists of loose boards; but this carpet is only made use of to sleep on. As these boats greatly differ from ours in shape, they are likewise rowed in a different manner: for two rowers, putting themselves at the back end of the sampan, work it forward very readily by the motion of two oars; and can almost turn the vessel just as they please: the oars, which are covered with a little hollow quadrangular iron, are laid on iron swivels, which are fastened at the hind end of the sampan: at the iron the oars are pieced, which makes them look a little bent: in common, a rower fits before with a short oar; but this he is forced to lay aside when he comes near the city, on account of the great throng of sampans; and this inconvenience has confirmed the Chinese in their old way of rowing. Instead of pitch, they make use of a cement like our putty, which we call *chinam*, but the Chinese call it *kiang*. Some authors say that this cement is made of lime and a resin exuding from the tree *tong yea*, and bamboo ockam.

Besides a couple of chairs, they have the following furniture: two oblong tables or boards on which some Chinese characters are drawn; a lanthorn for the night-time, and a pot to boil rice in. They have also a little cover for their household god, decorated with gilt paper and other ornaments: before him stands a pot filled with ashes, into which the tapers are put before the idol. The candles are nothing else than bamboo chips, to the upper end of which saw-dust of sandal-wood is stuck on with gum. These tapers are everywhere lighted before the idols in the pagodas, and before the doors in the streets; and, in large cities, occasion a smoke very pernicious to the eyes. Before this idol stands some *samso*, or Chinese brandy, water, &c. We ought to try whether the Chinese would not like to use juniper-wood instead of sandal-wood; which latter comes from Suratte, and has almost the same smell with juniper.

SAMSON, one of the judges of Israel, memorable for his supernatural strength, his victories over the Philistines, and his tragical end, as related in the book of *Judges*.

Samson's Post, a sort of pillar erected in a ship's hold, between the lower deck and the kelson, under the edge of a hatchway, and furnished with several notches that serve as steps to mount or descend, as occasion requires. This post being firmly driven into its place, not only serves to support the beam and fortify the vessel in that place, but also to prevent the cargo or materials contained in the hold, from shifting to the opposite side, by the rolling of the ship in a turbulent and heavy sea.

BOOKS *of* SAMUEL, two canonical books of the Old Testament, as being usually ascribed to the prophet Samuel.

The books of Samuel and the books of Kings are a continued history of the reigns of the kings of Israel and Judah; for which reason the books of Samuel are likewise styled *the first and second books of Kings*. Since the

the first 24 chapters contain all that relates to the History of Samuel, and the latter part of the first book and all the second include the relation of events that happened after the death of that prophet, it has been supposed that Samuel was author only of the first 24 chapters, and that the prophets Gad and Nathan finished the work. The first book of Samuel comprehends the transactions under the government of Eli and Samuel, and under Saul the first king; and also the acts of David while he lived under Saul; and is supposed to contain the space of 101 years. The second book contains the history of about 40 years, and is wholly spent in relating the transactions of David's reign.

SAMYDA, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is quinquepartite and coloured; there is no corolla; the capsule in the inside resembles a berry, is trivalved and unilocular; the seeds nestling.

Niebuhr's Travels by Heron.

SANA, or SANAA, a large, populous, and handsome town of Asia, capital of Arabia Felix, is situated in Proper Yemen, at the foot of mount Nikkum, on which are still to be seen the ruins of a castle, which the Arabs suppose to have been built by Shem. Near this mountain stands the castle; a rivulet runs upon the other side; and near it is the Bustan el Metwokkel, a spacious garden, which was laid out by Imam Metwokkel, and has been embellished with a fine garden by the reigning imam. The walls of the city, which are built of bricks, exclude this garden, which is inclosed within a wall of its own. The city, properly so called, is not very extensive: one may walk round it all in an hour. The city-gates are seven. Here are a number of mosques, some of which have been built by Turkish pachas. Sana has the appearance of being more populous than it actually is; for the gardens occupy a part of the space within the walls. In Sana are only 12 public baths; but many noble palaces, three of the most splendid of which have been built by the reigning Imam. The palace of the late Imam El Manzor, with some others, belong to the royal family, who are very numerous.

The Arabian palaces are built in a style of architecture different from ours. The materials are, however, burnt bricks, and sometimes even hewn stones; but the houses of the common people are of bricks which have been dried in the sun. There are no glass windows, except in one palace, near the citadel. The rest of the houses have, instead of windows, merely shutters, which are opened in fair weather, and shut when it is foul. In the last case, the house is lighted by a round wicket, fitted with a piece of Muscovy glass; some of the Arabians use small panes of stained glass from Venice.

At Sana, and in the other cities of the East, are great simseras or caravanseras for merchants and travellers. Each different commodity is sold in a separate market. In the market for bread, none but women are to be seen; and their little shops are portable. The several classes of mechanics work, in the same manner, in particular quarters in the open street. Writers go about with their desks, and make out brieves, copy-books, and instruct scholars in the art of writing, all at the same time. There is one market where old clothes are taken in exchange for new.

Wood for the carpenter's purpose is extremely dear through Yemen; and wood for the fire at Sana is no less so. All the hills near the city are bleak and bare, and wood is therefore to be brought hither from the distance of three days journey; and a camel's burthen commonly costs two crowns. This scarcity of wood is particularly supplied by the use of a little pit-coal. Peats are burnt here; but they are so bad, that straw must be intermixed to make them burn.

Fruits are, however, very plenteous at Sana. Here are more than 20 different species of grapes, which, as they do not all ripen at the same time, continue to afford a delicious refreshment for several months. The Arabs likewise preserve grapes, by hanging them up in their cellars, and eat them almost through the whole year. The Jews make a little wine, and might make more if the Arabs were not such enemies to strong liquors. A Jew convicted of conveying wine into an Arab's house is severely punished; nay, the Jews must even use great caution in buying and selling it among themselves. Great quantities of grapes are dried here; and the exportation of raisins from Sana is considerable. One sort of these grapes are without stones, and contains only a soft grain, the presence of which is not perceptible in eating the raisin.

In the castle, which stands on a hill, are two palaces. "I saw (says Niebuhr) about it some ruins of old buildings, but, notwithstanding the antiquity of the place, no remarkable inscriptions. There is the mint, and a range of prisons for persons of different ranks. The reigning Imam resides in the city; but several princes of the blood-royal live in the castle. The battery is the most elevated place about these buildings; and there I met with what I had no expectation of, a German mortar, with this inscription, *Jorg Selos Gosmick*, 1513. I saw also upon the same battery seven iron cannons, partly buried in the sand, and partly set upon broken carriages. These seven small cannons, with six others near the gates, which are fired to announce the return of the different festivals, are all the artillery of the capital of Yemen."

SANADON (Noel Etienne), a Jesuit, was born at Rouen in 1676, and was a distinguished professor of humanity at Caen. He there became acquainted with Huet bishop of Avranches, whose taste for literature and poetry was similar to his own. Sanadon afterwards taught rhetoric at the university of Paris, and was entrusted with the education of the prince of Conti, after the death of Du Morceau. In 1728 he was made librarian to Louis XIV. an office which he retained to his death. He died on the 21st September 1733, in the 58th year of his age.

His works are, 1. Latin Poems, in 12mo, 1715, and reprinted by Barbou, in 8vo, 1754. His style possesses the graces of the Augustan age. His language is pure and nervous; his verses are harmonious, and his thoughts are delicate and well chosen; but sometimes his imagination flags. His Latin poems consist of Odes, Elegies, Epigrams, and others, on various subjects. 2. A translation of Horace, with Remarks, in 2 vols 4to, printed at Paris in 1727; but the best edition of this work was printed at Amsterdam in 1735, in 8 vols 12mo, in which are also inserted the

Sanballat, Sanchez.

versions and notes of M. Dacier. Sanadon translated with elegance and taste; but he has not preserved the sublimity of the original in the odes, nor the energy and precision in the epistles and satires. In general, his version is rather a paraphrase than a faithful translation. Learned men have justly censured him for the liberty which he has taken in making considerable changes in the order and structure of the odes. He has also given offence by his uncouth orthography. 3. A Collection of Discourses delivered at different times, which afford strong proofs of his knowledge of oratory and poetry. 4. A book entitled *Prieres et Instructions Chretiennes*.

SANBALLAT, the chief or governor of the Cuthites or Samaritans, was always a great enemy to the Jews. He was a native of Horon, or Horonaim, a city beyond Jordan, in the country of the Moabites. He lived in the time of Nehemiah, who was his great opponent, and from whose book we learn his history. There is one circumstance related of him which has occasioned some dispute among the learned; and the state of the question is as follows: When Alexander the Great came into Phœnicia, and sat down before the city of Tyre, Sanballat quitted the interests of Darius king of Persia, and went at the head of 8000 men to offer his service to Alexander. This prince readily entertained him, and being much solicited by him, gave him leave to erect a temple upon mount Gerizim, where he constituted his son-in-law Manasseh the high-priest. But this story carries a flagrant anachronism: for 120 years before this, that is, in the year of the world 3550, Sanballat was governor of Samaria; wherefore the learned Dr Prideaux (in his Connection of the Histories of the Old and New Testament) supposes two Sanballats, and endeavours to reconcile it to truth and probability, by showing it to be a mistake of Josephus. This author makes Sanballat to flourish in the time of Darius Codomannus, and to build his temple upon mount Gerizim by licence from Alexander the Great; whereas it was performed by leave from Darius Nothus, in the 15th year of his reign. This takes away the difficulty arising from the great age of Sanballat, and brings him to be contemporary with Nehemiah, as the Scripture history requires.

SANCHEZ (François), called in Latin *Sanctius*, was of Las Brocas in Spain, and has been dignified by his own countrymen with the pompous titles of *le Pere de la Langue Latine, et le Docteur de tous les Gens-de-lettres*. He wrote, 1. An excellent treatise intitled Minerva, or *de Causis Linguæ Latinæ*; which was published at Amsterdam in 1714, in 8vo. The authors of the *Portroyal Methode de la Langue Latine* have been much indebted to this work. 2. The Art of Speaking, and the Method of translating Authors. 3. Several other learned pieces on grammar. He died in the year 1600, in his 77th year.

We must be careful to distinguish him from another Sanchez, *François Sanchez*, who died at Toulouse in 1632. This last was a Portuguese physician, who lived at Toulouse, and, though a Christian, was born of Jewish parents. He is said to have been a man of genius and a philosopher. His works have been collected under the title of *Opera Medica. His junctis sunt tractatus quidam philosophici non insubtiles*. They were printed at Toulouse in 1636.

SANCHONIATHO, a Phenician philosopher and historian, who is said to have flourished before the Trojan war about the time of Semiramis. Of this most ancient writer, the only remains extant are sundry fragments of cosmogony, and of the history of the gods and first mortals, preserved by Eusebius and Theodoret; both of whom speak of Sanchoniatho as an accurate and faithful historian; and the former adds, that his work, which was translated by Philo Byblius from the Phenician into the Greek language, contains many things relating to the history of the Jews which deserve great credit, both because they agree with the Jewish writers, and because the author received these particulars from the annals of Hierombalus, a priest of the god Jao.

Several modern writers, however, of great learning, have called in question the very existence of Sanchoniatho, and have contended with much plausibility, that the fragments which Eusebius adopted as genuine upon the authority of Porphyry, were forged by that author, or the pretended translator Philo, from enmity to the Christians, and that the Pagans might have something to show of equal antiquity with the books of Moses. These opposite opinions have produced a controversy that has filled volumes, and of which our limits would hardly admit of an abstract. We shall therefore in few words state what to us appears to be the truth, and refer such of our readers as are desirous of fuller information to the works of the authors (A) mentioned at the bottom of the page.

The controversy respecting Sanchoniatho resolves itself into two questions: 1. Was there in reality such a writer? 2. Was he of the very remote antiquity which his translator claims for him?

That there was really such a writer, and that the fragments preserved by Eusebius are indeed parts of his history interpolated perhaps by the translator (B), we are compelled to believe by the following reasons. Eusebius, who admitted them into his work as authentic, was one of the most learned men of his age, and a diligent searcher into antiquity. His conduct at the Nicene council shows, that on every subject he thought for himself, neither biassed by authority to the contrary, nor carried over by the rage of innovation to the other. He had better means than any modern writer can have of satisfying himself with respect to the authenticity of a very extraordinary work, which had then but lately

(A) Bochart, Scaliger, Vossius, Cumberland, Dodwell, Stillingfleet, Mosheim, Cudworth, and Warburton.

(B) Of this there are indeed several proofs. Philo makes Sanchoniatho speak of *Byblus* as the most ancient city of Phenicia, which, in all probability, it was not. We read in the book of Judges of Zidon or Berotha, the city where Sanchoniatho himself lived; but not of Byblus, which was the native city of Philo, and to which he is therefore partial. He makes him likewise talk of the Greeks at a period long before any of the Grecian states were known or probably peopled.

been translated into the Greek language, and made generally known; and there is nothing in the work itself, or at least in those parts of it which he has preserved, that could induce a wise and good man to obtrude it upon the public as genuine, had he himself suspected it to be spurious. Too many of the Christian fathers were indeed very credulous, and ready to admit the authenticity of writings without duly weighing the merits of their claim; but then such writings were always believed to be favourable to the Christian cause, and inimical to the cause of Paganism. That no man of common sense could suppose the cosmogony of Sanchoniatho favourable to the cause of revealed religion, a farther proof cannot be requisite than what is furnished by the following extract.

"He supposeth, or affirms, that the principles of the universe was a dark and windy air, or a wind made of dark air, and a turbulent evening *chaos;* and that these things were boundless, and for a long time had no bound or figure. But when this wind fell in love with his own principles, and a mixture was made, that mixture was called *desire* or *cupid* (πόθος).

"This mixture completed, was the beginning of the (κτίσεως) making of all things. But that wind did not know its own production; and of this, with that wind, was begotten *Mot*, which some call *Mud*, others the putrefaction of a watery mixture. And of this came all the seed of this building, and the generation of the universe.

"But there were certain animals, which had no sense, out of which were begotten intelligent animals, and were called *Zophesemin*, that is, the spies or overseers of Heaven; and were formed alike in the shape of an egg. Thus shone out *Mot*, the sun and the moon, the less and the greater stars.

"And the air shining thoroughly with light, by its fiery influence on the sea and earth, winds were begotten, and clouds and great defluxions of the heavenly waters. And when all these things first were parted, and were separated from their proper place by the heat of the sun, and then all met again in the air, and dashed against one another, and were so broken to pieces; whence thunders and lightenings were made: and at the stroke of these thunders the fore-mentioned intelligent animals were awakened, and frighted with the sound; and male and female stirred in the earth and in the sea: This is their generation of animals.

"After these things our author (Sanchoniatho) goes on saying: These things are written in the *Cosmogony* of *Taautus*, and in his memoirs; and out of the conjectures, and surer natural signs which his mind saw, and found out, and wherewith he hath enlightened us.

"Afterwards declaring the names of the winds, *north* and *south* and the rest, he makes this epilogue. 'But these first men consecrated the plants shooting out of the earth, and judged them gods, and worshipped them; upon whom they themselves lived, and all their posterity and all before them: to these they made their meat and drink offerings.' Then he concludes: 'these were the devices of worship agreeing with the weakness and want of boldness in their minds."

Let us suppose Eusebius to have been as weak and credulous as the darkest monk in the darkest age of Europe, a supposition which no man will make who knows any thing of the writings of that eminent historian; what could he see in this senseless jargon, which even a dreaming monk would think of employing in support of Christianity? Eusebius calls it, and calls it truly, direct atheism; but could he imagine that an ancient system of atheism would contribute so much to make the Pagans of his age admit as divine revelations the books of the Old and New Testaments, that he should be induced to adopt, without examination, an impudent forgery not 200 years old as genuine remains of the most remote antiquity?

If this Phenician cosmogony be a fabrication of Porphyry, or of the pretended translator, it must surely have been fabricated for some purpose; but it is impossible for us to conceive what purpose either of these writers could have intended to serve by forging a system so extravagantly absurd. Porphyry, though an enemy to the Christians, was not an atheist, and would never have thought of making an atheist of him whom he meant to obtrude upon the world as the rival of Moses. His own principles were those of the Alexandrian Platonists; and had he been the forger of the works which bear the name of Sanchoniatho, instead of the incomprehensible jargon about *dark wind*, *evening chaos*, *Mot*, the *overseers of heaven in the shape of an egg*, and *animation proceeding from the sound of thunder*, we should doubtless have been amused with refined speculations concerning the operations of the *Demiurgus* and the other persons in the Platonic Triad. See PLATONISM and PORPHYRY.

Father Simon of the oratory imagines * that the purpose for which the history of Sanchoniatho was forged, was to support Paganism, by taking from it its mythology and allegories, which were perpetually objected to it by the Christian writers; but this learned man totally mistakes the matter. The primitive Christians were too much attached to allegories themselves to rest their objections to Paganism on such a foundation: what they objected to that system was the immoral stories told of the gods. To this the Pagan priests and philosophers replied, that these stories were only *mythologic allegories*, which veiled all the great truths of Theology, Ethics, and Physics. The Christians said, this could not be; for that the stories of the gods had a substantial foundation in fact, these gods being only dead men deified, who, in life, had like passions and infirmities with other mortals. This then was the objection which the forger of the works of Sanchoniatho had to remove, if he really forged them in support of Paganism; but, instead of doing so, he gives the genealogy and history of all the greater gods, and shows, that they were men deified after death for the exploits, some of them grosly immoral, which they had performed in this world. We have elsewhere (POLYTHEISM, n° 17.) given his account of the deification of *Chrysor*, and *Ouranos*, and *Ge*, and *Hypsistos*, and *Muth;* but our readers may not perhaps be ill pleased to accompany him through the history of *Ouranos* and *Cronus*, two of his greatest gods; whence it will appear how little his writings are calculated to support the tottering cause of Paganism against the objections which were then urged to it by the Christian apologists.

"Ouranos (says he), taking the kingdom of his father, married Ge his sister, and by her had four sons; *Ilus*, who is called *Cronus; Betylus; Dagon*, who is *Siton*, or the *god of corn;* and *Atlas*. But by other wives Ouranos

* *Bib. Cri* vol. i. p. 140.

Sanchoniatho.

Ouranos had much issue, wherefore Ge being grieved at it and jealous, reproached Ouranos, so as they parted from each other. But Ouranos, though he parted from her, yet by force invading her, and lying with her when he listed, went away again; and he also attempted to kill the children he had by her. Ge also often defended or avenged herself, gathering auxiliary powers unto her. But when Cronus came to man's age, using Hermes Trismegistus as his counsellor and assistant (for he was his secretary), he opposed his father Ouranos, avenging his mother. But Cronus had children, Persephone and Athena; the former died a virgin, but by the counsel of the latter Athena, and of Hermes, Cronus made of iron a scimitar and a spear. Then Hermes, speaking to the assistants of Cronus with enchanting words, wrought in them a keen desire to fight against Ouranos in the behalf of Ge; and thus Cronus warring against Ouranos, drove him out of his kingdom, and succeeded in the imperial power or office. In the fight was taken a well-beloved concubine of Ouranos big with child. Cronus gave her in marriage to Dagon, and she brought forth at his house what she had in her womb by Ouranos, and called him *Demaroon*. After these things Cronus builds a wall round about his house, and founds *Byblus* the first city in Phenicia. Afterwards Cronus, suspecting his own brother Atlus, with the advice of Hermes, throwing him into a deep hole of the earth, there buried him, and having a son called *Sadid*, he dispatched him with his own sword, having a suspicion of him, and deprived his own son of life with his own hand. He also cut off the head of his own daughter, so that all the gods were amazed at the mind of Cronus. But in process of time, Ouranos being in flight, or banishment, sends his daughter Astarte, with two other sisters Rhea and Dione, to cut off Cronus by deceit, whom Cronus taking, made wives of these sisters. Ouranos, understanding this, sent Eimarmene and Hore, Fate and Beauty, with other auxiliaries, to war against him: but Cronus, having gained the affections of these also, kept them with himself. Moreover, the god Ouranos devised *Betulia*, contriving stones that moved as having life. But Cronus begat on Astarte seven daughters called *Titanides* or *Artemides*; and he begat on Rhea seven sons, the youngest of whom, as soon as he was born, was consecrated a god. Also by Dione he had daughters, and by Astarte moreover two sons, *Pothos* and *Eros*, i. e. Cupid and Love. But Dagon, after he had found out bread, corn, and the plough, was called *Zeus Arotrius*. To *Sydyc*, or *the just*, one of the *Titanides* bare *Asclepius*. Cronus had also in *Peræa* three sons, 1. *Cronus* his father's namesake. 2. *Zeus Belus*. 3. *Apollo*."

Is it conceivable, that a writer so acute as Porphyry, or indeed that any man of common sense either in his age or in that of Philo, would forge a book filled with such stories as these, in order to remove the Christian objections to the immoral characters of the Pagan divinities? The very supposition is impossible to be made. Nor let any one imagine that Sanchoniatho is here writing allegorically, and by his tales of *Ouranos*, and *Ge*, and *Cronus*, is only personifying the *heaven*, the *earth*, and *time*. On the contrary, he assures us, that *Ouranos*, or *Epigeus*, or *Autochthon* (for he gives him all these names), was the son of one *Elioun* or *Hypsistos*, who dwelt about Byblus, and that from him the element which is over us was called *heaven*, on account of its excellent beauty, as the earth was named *Ge* after his sister and wife. And his translator is very angry * with the Neotoric Greeks, as he calls them, because that, "by a great deal of force and straining, they laboured to turn all the stories of the gods into allegories and physical discourses." This proves unanswerably, that the author of this book, whoever he was, did not mean to veil the great truths of religion under the cloak of mythologic allegories; and therefore, if it was forged by Porphyry in support of Paganism, the forger so far mistook the state of the question between him and his adversaries, that he contrived a book, which, if admitted to be ancient, totally overthrew his own cause.

* Apud Euseb. Præp. Evang. lib. 1. cap. 6.

The next thing to be inquired into with respect to Sanchoniatho is his antiquity. Did he really live and write at so early a period as Porphyry and Philo pretend? We think he did not; and what contributes not a little to confirm us in our opinion, is that mark of national vanity and partiality, common to after-times, in making the sacred mysteries of his own country original, and conveyed from Phenicia into Egypt. This, however, furnishes an aditional proof that Porphyry was not the forger of the work; for he well knew that the mysteries had their origin in Egypt (see MYSTERIES), and would not have fallen into such a blunder. He is guilty, indeed, of a very great anachronism, when he makes Sanchoniatho contemporary with Semiramis, and yet pretends that what he writes of the Jews is compiled from the records of Hierombalus the priest of the god Jao; for Bochart has made it appear in the highest degree probable †, that *Hierombalus* or *Jeromb-baal* is the *Jerub-baal* or *Gideon* of scripture.

† Geogr. Sacra part 2 book 2. lib. 2. cap. 17.

Between the reign of Semiramis and the Trojan war a period elapsed of near 800 years, whereas Gideon flourished not above seventy years before the destruction of Troy. But supposing Sanchoniatho to have really consulted the records of Gideon, it by no means follows that he flourished at the same period with that judge of Israel. He speaks of the building of Tyre as an ancient thing, while our best chronologers ‡ place it in the time of Gideon. Indeed, were we certain that any writings had been left by that holy man, we should be obliged to conclude, that a large tract of time had intervened between the death of their author and their falling into the hands of Sanchoniatho; for, surely, they could not, in a short period, have been so completely corrupted as to give any countenance to his impious absurdities. His atheistic cosmogony he does not indeed pretend to have got from the annals of the priest of Jao, but from records which were deposited in his own town of Berytus by Thoth a Phenician philosopher, who was afterwards made king of Egypt. But surely the annals of Gideon, if written by himself, and preserved pure to the days of Sanchoniatho, must have contained so many truths of the Mosaic religion, as must have prevented any man of sense from adopting so impossible a theory as Thoth's, though sanctioned by the greatest name of profane antiquity. Stillingfleet indeed thinks it most probable that Sanchoniatho became acquainted with the most remarkable passages of the life of Jerub-baal from annals written by a Phenician pen. He observes, that immediately after the death of Gideon, the Israelites, with their usual proneness to idolatry, worshiped *Baal-berith*, or the idol of Berytus, the

‡ Scaliger.

Sanchoniatho, Sancroft.

the town in which Sanchoniatho lived; and from this circumstance he concludes that there must have been such an intercourse between the Hebrews and Berytians, that in process of time the latter people might assume to themselves the Jerub-baal of the former, and hand down his actions to posterity as those of a priest instead of a great commander. All this may be true; but if so, it amounts to a demonstration that the antiquity of Sanchoniatho is not so high by many ages as that which is claimed for him by Philo and Porphyry, though he may still be more ancient, as we think Vossius has proved him to be*, than any other profane historian whose writings have come down to us either entire or in fragments.

* De Hist. Gr. lib. 1 cap. 1.

But granting the authenticity of Sanchoniatho's history, what, it may be asked, is the value of his fragments, that we should be at any trouble to ascertain whether they be genuine remains of high antiquity, or the forgeries of a modern impostor? We answer, with the illustrous Stillingfleet, that though those fragments contain such absurdities as it would be a disgrace to reason to suppose credible; though the whole cosmogony is the grossest sink of atheism; and though many persons make a figure in the history, whose very existence may well be doubted; yet we, who have in our hands the light of divine revelation, may in this dungeon discover many excellent relicks of ancient tradition, which throw no feeble light upon many passages of holy scripture, as they give us the origin and progress of that idolatry which was so long the opprobrium of human nature. They furnish too a complete confutation of the extravagant chronology of the Chaldeans and Egyptians, and show, if they be genuine, that the world is indeed not older than it is said to be by Moses. We shall conclude the article by earnestly recommending to our readers an attentive perusal of *Cumberland's* SANCHONIATHO.

SANCROFT (William), archbishop of Canterbury, was born at Fressingfield in Suffolk in 1616; and admitted into Emanuel college, Cambridge, in 1633. In 1642 he was elected a fellow; and, for refusing to take the covenant, was ejected from his fellowship. In 1660 he was chosen one of the university preachers; and in 1663 was nominated to the deanry of York. In 1664 he was installed dean of St Paul's. In this station he set himself with unwearied diligence to repair the cathedral, till the fire of London in 1666 employed his thoughts on the more noble undertaking of rebuilding it, toward which he gave 1400l. He also rebuilt the deanry, and improved the revenue of it. In 1668 he was admitted archdeacon of Canterbury, on the king's presentation. In 1677, being now prolocutor of the convocation, he was unexpectedly advanced to the archbishopric of Canterbury. In 1678 he was committed to the tower, with six other bishops, for presenting a petition to the king against reading the declaration of indulgence. Upon king James II.'s withdrawing himself, he concurred with the lords in a declaration to the prince of Orange for a free parliament, and due indulgence to the Protestant dissenters. But when that prince and his consort were declared king and queen, his grace refusing to take the oaths to their majesties, he was suspended and deprived. He lived in a very private manner, till he died in 1693. His learning, integrity, and piety, made him an exalted ornament of the church. He published a volume in 12mo, intitled *Modern Politics*, taken from Machiavel, Borgia, and other choice authors; Familiar Letters to Mr North, an 8vo pamphlet; and three of his sermons were printed together after his death.

Sanctification || Sand.

SANCTIFICATION, the act of sanctifying, or rendering a thing holy. The reformed divines define sanctification to be an act of God's grace, by which a person's desires and affections are alienated from the world; and by which he is made to die to sin, and to live to righteousness; or, in other words, to feel an abhorrence of all vice, and a love of religion and virtue.

SANCTION, the authority given to a judicial act, by which it becomes legal and authentic.

SANCTORIUS, a most ingenious and learned physician, was a professor in the university of Padua, in the beginning of the 17th century. He contrived a kind of statical chair, by means of which, after estimating the aliments received, and the sensible discharges, he was enabled to determine with great exactness the quantity of insensible perspiration, as well as what kind of victuals and drink increased or diminished it. On these experiments he erected a curious system, which he published under the title of *De medicina statica*; of which we have an English translation by Dr Quincy. Sanctorius published several other treatises, which shewed great abilities and learning.

SANCTUARY, among the Jews, also called *Sanctum sanctorum*, or *Holy of holies*, was the holiest and most retired part of the temple of Jerusalem, in which the ark of the covenant was preserved: and into which none but the high-priest was allowed to enter, and that only once a-year, to intercede for the people.

Some distinguish the sanctuary from the sanctum sanctorum, and maintain that the whole temple was called the *sanctuary*.

To try and examine any thing by the weight of the sanctuary, is to examine it by a just and equal scale; because, among the Jews, it was the custom of the priests to keep stone weights, to serve as standards for regulating all weights by, though these were not at all different from the royal or profane weights.

SANCTUARY, in the Romish church, is also used for that part of the church in which the altar is placed, encompassed with a rail or balustrade.

SANCTUARY, in our ancient customs, the same with ASYLUM.

SAND, in natural history, a genus of fossils, the characters of which are, that they are found in minute concretions; forming together a kind of powder, the genuine particles of which are all of a tendency to one determinate shape, and appear regular though more or less complete concretions; not to be dissolved or disunited by water, or formed into a coherent mass by means of it, but retaining their figure in it; transparent, vitrifiable by extreme heat, and not dissoluble in nor effervescing with acids. Sands are subject to be variously blended, both with homogene and heterogene substances, as that of talks, &c. and hence, as well as from their various colours, are subdivided into, 1. White sands, whether pure or mixed with other arenaceous or heterogeneous particles; of all which there are several species, differing no less in the fineness of their particles than in the different degrees of colour, from a bright and shining white,

white, to a brownish, yellowish, greenish, &c. white. 2. The red and reddish sands, both pure and impure. 3. The yellow sands, whether pure or mixed, are also very numerous. 4. The brown sands, distinguished in the same manner. 5. The black sands, whereof there are only two species, viz. a fine shining greyish-black sand, and another of a fine shining reddish-black colour. 6. The green kind; of which there is only one known species, viz. a coarse variegated dusky green sand, common in Virginia.

Sand is of great use in the glass-manufacture; a white kind of sand being employed for making of the white glass, and a coarse greenish-looking sand for the green glass.

In agriculture, it seems to be the office of sand to make unctuous earths fertile, and fit to support vegetables, &c. For earth alone, we find, is liable to coalesce, and gather into a hard coherent mass, as appears in clay; and being thus embodied, and as it were glued together, is no way disposed to nourish vegetables. But if such earth be mixed with sand, its pores are thereby kept open, and the earth itself loose, so as thus to give room for the juices to ascend, and for plants to be nourished thereby. A vegetable planted only in sand, or in a fat glebe, or in earth, receives little growth or increase; but a mixture of both renders the mass fertile. In effect, earth is in some measure made organical by means of sand; pores and spaces, something analogous to vessels, being thereby maintained, by which the juices may be conveyed, prepared, digested, circulated, and at length discharged. Common sand is, therefore, a very good addition, by way of manure, to all sorts of clay-lands; it warms them, and makes them more open and loose.

Sand-Bags, in the art of war. See *Sacks of Earth*.

Sand-Eel, in ichthyology. See Ammodytes.

Sand-Floods, a name given to the flowing of sand so common in the deserts of Arabia. Mr Bruce gives the following accurate description of some that he saw in travelling thro' that long and dreary desert. "At one o'clock (says he) we alighted among some acacia-trees at Waadi el Halboub, having gone twenty-one miles. We were here at once surprised and terrified by a sight truly one of the most magnificent in the world. In that vast expanse of desert from west and to north-west of us, we saw a number of prodigious pillars of sand at different distances, at times moving with great celerity, at others stalking on with a majestic slowness: at intervals we thought they were coming in a few minutes to overwhelm us; and small quantities of sand did actually more than once reach us. Again they would retreat so as to be almost out of sight, their tops reaching to the very clouds. There the tops often separated from the bodies; and these, once disjoined, dispersed in the air, and did not appear more. Sometimes they were broken near the middle, as if struck with a large cannon shot. About noon they began to advance with considerable swiftness upon us, the wind being very strong at north. Eleven of them ranged alongside of us about the distance of three miles. The greatest diameter of the largest appeared to me at that distance as if it would measure ten feet. They retired from us with a wind at south east, leaving an impression upon my mind to which I can give no name, though surely one ingredient in it was fear, with a considerable deal of wonder and astonishment. It was in vain to think of flying, the swiftest horse or fastest sailing ship could be of no use to carry us out of this danger; and the full persuasion of this rivetted me as if to the spot where I stood, and let the sands gain on me so much in my state of lameness, that it was with some difficulty I could overtake them.

"The same appearance of moving pillars of sand presented themselves to us this day in form and disposition like those we had seen at Waadi Halboub, only they seemed to be more in number and less in size. They came several times in a direction close upon us, that is, I believe, within less than two miles. They began immediately after sun-rise, like a thick wood, and almost darkened the sun: his rays shining through them for near an hour, gave them an appearance of pillars of fire. Our people now became desperate: the Greek shrieked out, and said it was the day of judgment. Ismael pronounced it to be hell, and the Theorists, that the world was on fire. I asked Idris if ever he had before seen such a sight? He said he had often seen them as terrible, though never worse; but what he feared most was that extreme redness in the air, which was a sure presage of the coming of the simoom." See Simoom.

The flowing of sand, though far from being so tremendous and hurtful as in Arabia, is of very bad consequences in this country, as many valuable pieces of land have thus been entirely lost; of which we give the following instances from Mr Pennant, together with a probable means of preventing them in future: "I have more than once (says he), on the eastern coasts of Scotland, observed the calamitous state of several extensive tracts, formerly in a most flourishing condition, at present covered with sands, unfitable as those of the deserts of Arabia. The parish of Furvie, in the county of Aberdeen, is now reduced to two farms, and above L. 500 a-year lost to the Exchequer, as appears by the oath of the factor in 1760, made before the court of exchequer, to ascertain the crown's salary. Not a vestige is to be seen of any buildings, unless a fragment of the church.

"The estate of Cowbin, near Forres, is another melancholy instance. This tract was once worth L. 300 a-year, at this time overwhelmed with sand. This strange inundation was first in 1768 or 1769, chiefly when a strong wind prevailed. Its motion is so rapid, that I have been assured, that an apple tree has been so covered with it in one season, that only the very summit appeared. This destress was brought on about ninety years ago, and was occasioned by the cutting down some trees, and pulling up the bent or star which grew on the sand-hills; which at last gave rise to the act of 15 George II. c. 33, to prohibit the destruction of this useful plant.

"I beg leave to suggest to the public a possible means of putting a stop to these destructive ravages. Providence hath kindly formed this plant to grow only in pure sand. Mankind was left to make, in after-times, an application of it suitable to their wants. The sand-hills, on a portion of the Flintshire shores, in the parish of Llanasa, are covered with it naturally, and kept firm in their place. The Dutch perhaps owe the existence of part at least of their country to the sowing of it on the *mobile solum*, their sand-banks.

"My humane and amiable friend, the late Benjamin Stillingfleet,

Stillingfleet, Esq; recommended the sowing of this plant on the sandy wilds of Norfolk, that its matted roots might prevent the deluges of sand which that country experiences. It has been already remarked, that wherefoever this plant grows the salutary effects are soon observed to follow. A single plant will fix the sand, and gather it into a hillock; these hillocks, by the increase of vegetation, are formed into larger, till by degrees a barrier is made often against the encroachments of the sea; and might as often prove preventative of the calamity in question. I cannot, therefore, but recommend the trial to the inhabitants of many parts of North Britain. The plant grows in most places near the sea, and is known to the Highlanders by the name of *murah*; to the English by that of *bent-star*, *mat-grass*, or *marram*. Linnæus calls it *arundo arenaria*. The Dutch call it *helm*. This plant hath stiff and sharp-pointed leaves, growing like a rush, a foot and a half long: the roots both creep and penetrate deeply into their sandy beds: the stalk bears an ear five or six inches long, not unlike rye; the seeds are small, brown, and roundish. By good fortune, as old Gerard observes, no cattle will eat or touch this vegetable, allotted for other purposes, subservient to the use of mankind."

Sand-Piper, in ornithology. See TRINGA.

Sand-Stone, a genus of stones belonging to the order of saxa; and including all those which consist of such minute particles that they cannot easily be discerned by the eye. The species enumerated by Cronstedt are,

1. Those cemented by a clay, of which there are two varieties; one with porcelain clay, the other with common clay. The former is met with in Sweden under the stratum of coal in a coal-mine in the province of Shone, and is very hard and refractory in the fire; the other is found in the island of Gothland.

2. With lime, resembling mortar made with coarse sand. There are two varieties, one consisting of transparent grey-coloured grains of quartz and white limestone, the other of a loose texture, hardening in the air; but having the particles too fine to be visible. The former of these is found in Sweden, the latter in France and Livonia.

3. Sand-stone having its particles bound together by an unknown cement. Of this there are four varieties; 1. Loose; 2. Somewhat hard; 3. Compact; 4. Very hard; all of them found in different parts of Sweden.

4. Cemented by rust of iron, found in the form of loose stones in several places.

Cronstedt informs us that the greatest part of sand-stones consist of quartz and mica, being those substances which most readily admit of granulation without being reduced to powder. Some years ago the Baron de Dietrich showed a singular variety of sand-stone at Paris. It consists of small grains of hard quartz which strike fire with steel united with some micaceous particles. It is flexible and elastic, the flexibility depending on the micaceous part and softness of the gluten with which the particles are cemented. This elastic stone is said to have been found at Brazil, and brought to Germany by his excellency the marquis de Lavradio. There are also two tables of white marble, kept in the palace of Borghese at Rome, which have the same property. But the sparry particles of their substance, though transparent, are rather soft, and may be easily separated by the nail. They effervesce with aquafortis, and there is also a small mixture of minute particles of talk or mica.

Sand-stones are of great use in buildings which are required to resist air, water, and fire. Some of them are soft in the quarry, but become hard when exposed to the air. The loose ones are most useful, but the solid and hard ones crack in the fire, and take a polish when used as grindstones. Stones of this kind ought therefore to be nicely examined before they are employed for the usual purposes. Our author observes that the working masons, or stone-cutters, ought to wear a piece of frize or baize before their mouths, to preserve themselves from a consumption which their business is otherwise apt to bring on. Limestone, however, is not observed to have this effect.

To the list of sand-stones Fabroni adds gritstone, of greater or less hardness; mostly of a grey, and sometimes of a yellowish colour, composed of a siliceous and micaceous sand, but rarely of a sparry kind, with greater or lesser particles closely connected with an argillaceous cement. It strikes fire with steel, vitrifies in a strong fire, and is generally indissoluble in acids. It is used for mill-stones, whet-stones, and sometimes for filtering stones, as well as for building.

SANDAL, in antiquity, a rich kind of slipper worn on the feet by the Greek and Roman ladies, made of gold, silk, or other precious stuff; consisting of a sole, with an hollow at one extreme to embrace the ancle, but leaving the upper part of the foot bare.

SANDAL, is also used for a shoe or slipper worn by the pope and other Romish prelates when they officiate. It is also the name of a sort of slipper worn by several congregations of reformed monks. This last consists of no more than a mere leathern sole, fastened with latches or buckles, all the rest of the foot being left bare. The capuchins wear sandals; the recollects, clogs; the former are of leather, and the latter of wood.

Sandal-Wood. See SAUNDERS.

SANDARACH, in natural history, a very beautiful native fossil, though too often confounded with the common factitious red arsenic, and with the red matter formed by melting the common yellow orpiment.

It is a pure substance, of a very even and regular structure, is throughout of that colour which our dyers term an *orange-scarlet*, and is considerably transparent even in the thickest pieces. But though, with respect to colour, it has the advantage of cinnabar while in the mass, it is vastly inferior to it when both are reduced to powder. It is moderately hard, and remarkably heavy; and, when exposed to a moderate heat, melts and flows like oil: if set on fire, it burns very briskly.

It is found in Saxony and Bohemia, in the copper and silver mines; and is sold to the painters, who find it a very fine and valuable red: but its virtues or qualities in medicine are no more ascertained at this time than those of the yellow orpiment.

Gum-Sandarach, is a dry and hard resin, usually met with in loose granules, of the bigness of a pea, a horse-bean, or larger; of a pale whitish yellow colour, transparent, and of a resinous smell, brittle, very inflammable, of an acrid and aromatic taste, and diffusing a very pleasant smell when burning. It is produced from a

a ſpecies of the juniper; (ſee JUNIPERUS.) It flows only from theſe trees in hot countries: but the natives promote its diſcharge by making inciſions in the bark.

Sandarach is eſteemed good in diarrhœas and in hæmorrhagies.

The varniſh-makers make a kind of varniſh of it, by diſſolving it in oil of turpentine or linſeed, or in ſpirit of wine.

Pounded SANDARACH. See POUNCE.

SANDEMANIANS, in eccleſiaſtical hiſtory, a modern ſect that originated in Scotland about the year 1728; where it is at this time diſtinguiſhed by the name of *Gliſſites*, after its founder Mr John Glaſs, who was a miniſter of the eſtabliſhed church in that kingdom; but being charged with a deſign of ſubverting the national covenant, and ſapping the foundation of all national eſtabliſhments by the kirk judicatory, was expelled by the ſynod from the church of Scotland. His ſentiments are fully explained in a tract publiſhed at that time, intitled, "The Teſtimony of the King of Martyrs," and preſerved in the firſt volume of his works. In conſequence of Mr Glaſs's expulſion, his adherents formed themſelves into churches, conformable in their inſtitution and diſcipline to what they apprehended to be the plan of the firſt churches recorded in the New Teſtament. Soon after the year 1755, Mr Robert Sandeman, an elder in one of theſe churches in Scotland, publiſhed a ſeries of letters addreſſed to Mr Hervey, occaſioned by his Theron and Aſpaſio; in which he endeavours to ſhow, that his notion of faith is contradictory to the ſcripture account of it, and could only ſerve to lead men, profeſſedly holding the doctrines commonly called *Calviniſtic*, to eſtabliſh their own righteouſneſs upon their frames, inward feelings, and various acts of faith. In theſe letters Mr Sandeman attempts to prove, that faith is neither more nor leſs than a ſimple aſſent to the divine teſtimony concerning Jeſus Chriſt, recorded in the New Teſtament; and he maintains, that the word *faith*, or *belief*, is conſtantly uſed by the apoſtles to ſignify what is denoted by it in common diſcourſe, viz. a perſuaſion of the truth of any propoſition, and that there is no difference between believing any common teſtimony, and believing the apoſtolic teſtimony, except that which reſults from the nature of the teſtimony itſelf. This led the way to a controverſy, among thoſe who were called *Calviniſts*, concerning the nature of juſtifying faith; and thoſe who adopted Mr Sandeman's notion of it, and who took the denomination of *Sandemanians*, formed themſelves into church order, in ſtrict fellowſhip with the churches in Scotland, but holding no kind of communion with other churches. The chief opinions and practices in which this ſect differs from other Chriſtians, are, their weekly adminiſtration of the Lord's Supper; their love-feaſts, of which every member is not only allowed but required to partake, and which conſiſt of their dining together at each other's houſes in the interval between the morning and afternoon ſervice; their kiſs of charity uſed on this occaſion, at the admiſſion of a new member, and at other times, when they deem it to be neceſſary or proper; their weekly collection before the Lord's Supper, for the ſupport of the poor, and defraying other expences; mutual exhortation; abſtinence from blood and things ſtrangled; waſhing each other's feet, the precept concerning which, as well as other precepts, they underſtand literally; community of goods, ſo far as that every one is to conſider all that he has in his poſſeſſion and power as liable to the calls of the poor and church; and the unlawfulneſs of laying up treaſures on earth, by ſetting them apart for any diſtant, future, and uncertain uſe. They allow of public and private diverſions, ſo far as they are not connected with circumſtances really ſinful; but apprehending a lot to be ſacred, diſapprove of playing at cards, dice, &c. They maintain a plurality of elders, paſtors, or biſhops, in each church; and the neceſſity of the preſence of two elders in every act of diſcipline, and at the adminiſtration of the Lord's Supper. In the choice of theſe elders, want of learning, and engagements in trade, &c. are no ſufficient objection; but ſecond marriages diſqualify for the office; and they are ordained by prayer and faſting, impoſition of hands, and giving the right hand of fellowſhip. In their diſcipline they are ſtrict and ſevere; and think themſelves obliged to ſeparate from the communion and worſhip of all ſuch religious ſocieties as appear to them not to profeſs the ſimple truth for their only ground of hope, and who do not walk in obedience to it. We ſhall only add, that in every church tranſaction, they eſteem unanimity to be abſolutely neceſſary. From this abſtract of the account which they have publiſhed of their tenets and practices, it does not ſeem to be probable that their number ſhould be very conſiderable.

SANDERS. See SAUNDERS.

SANDIVER, a whitiſh ſalt, continually caſt up from the *metal*, as it is called, whereof glaſs is made; and, ſwimming on its ſurface, is ſkimmed of.

Sandiver is alſo plentifully thrown out in the eruptions of volcanoes; ſome is of a fine white, and others tinged bluiſh or yellowiſh.

Sandiver is ſaid to be detergent, and good for foulneſſes of the ſkin. It is alſo uſed by gilders of iron.

SANDIX, a kind of minium, or red-lead, made of ceruſe, but much inferior to the true minium.

SANDOMIR, a city, the capital of a palatinate of the ſame name, in Little Poland, on the Viſtula. The Swedes blew up the caſtle in 1656; and here, in 1659, was a dreadful battle between the Tartars and Ruſſians. It is 84 miles ſouth-eaſt of Cracow. Lat. 49. 26. Long. 20. 10.

SANDORICUM, in botany: A genus of the monogynia order, belonging to the decandria claſs of plants; and in the natural method ranking under the 23d order, *Tribillatæ*. The calyx is quinquedentate; the petals five, and linear-ſhaped: the nectarium has ten dentæ, on which the antheræ grow; the fruit is a drupa, and five in number, each of which has one ſeed. There is only one ſpecies, *viz.* the indicum, a native of Africa and the Eaſt Indies.

SANDPU, or SANPOO, the vulgar name of one of the moſt mighty rivers in the world. The name it generally goes by, and by which it is beſt known, is that of *Burrampooter*. Of this moſt majeſtic body of waters we have the following very animated account in *Maurice's Indian Antiquities*. "An object equally novel and grand now claims our attention; ſo novel, as not to have been known to Europeans in the real extent of its magnificence before the year 1765, and ſo awfully grand, that the aſtoniſhed geographer, thinking the language of proſe inadequate to convey his conception, has

Sandpu, Sandwich.

has had recourse to the more expressive and energetic language of poetry: but

——— Scarce the Muse herself
Dares stretch her wing o'er this enormous mass
Of rushing waters; to whose dread expanse,
Continuous depth, and wond'rous length of course,
Our floods are rills.

"This stupendous object is the Burrampooter, a word which in Shanscrit signifies *the son of Brahma*; for no meaner origin could be assigned to so wonderful a progeny. This supreme monarch of Indian rivers derives its source from the opposite side of the same mountain from which the Ganges springs, and taking a bold sweep towards the east, in a line directly opposite to the course of that river, washes the vast country of Tibet, where, by way of distinction, it is denominated *Sanpso*, or *the river*. Winding with a rapid current through Tibet, and, for many a league, amidst dreary deserts and regions remote from the habitations of men, it waters the borders of the territory of Lassa, the residence of the grand Lama; and then deviating with a cometary irregularity, from an east to a south-east course, the *mighty wanderer* approaches within 200 miles of the western frontiers of the vast empire of China. From this point its more direct path to the ocean lay through the gulph of Siam; but with a desultory course peculiar to itself, it suddenly turns to the west through Assam, and enters Bengal on the north-east quarter. Circling round the western point of the Garrow mountains, the Burrampooter now takes a southern direction; and for 60 miles before it meets the Ganges, its sister in point of origin, but not its rival in point of magnitude, glides majestically along in a stream which is regularly from four to five miles wide, and but for its freshness, Mr Rennel says, might pass for an arm of the sea. About 40 miles from the ocean these mighty rivers unite their streams; but that gentleman is of opinion that their junction was formerly higher up, and that the accumulation of two such vast bodies of water, scooped out the amazing bed of the Megna lake. Their present conflux is below Luckipoor; and by that confluence a body of fresh running water is produced, hardly equalled, and not exceeded, either in the old or the new hemisphere. So stupendous is that body of water, that it has formed a gulph of such extent as to contain islands that rival our Isle of Wight in size and fertility; and with such resistless violence does it rush into the ocean, that in the rainy season the sea itself, or at least its surface, is perfectly fresh for many leagues out."

SANDWICH, a town of Kent, one of the cinque ports, and which has the title of an earldom. It consists of about 1500 houses, most of them old, and built with wood, though there are a few new ones built with brick and flints. It has three long narrow streets paved, and thirty cross streets or alleys, with about 6000 inhabitants, but no particular manufactory. The town is walled round, and also fortified with ditches and ramparts; but the walls are much decayed, on account of the harbour being so choaked up with sand that a ship of 100 tons burthen cannot get in. E. Long. 1. 20. N. Lat. 51. 20.

Sandwich Islands, a group of islands in the South Sea, lying near New Ireland, were among the last discoveries of captain Cook, who so named them in honour of the Earl of Sandwich, under whose administration these discoveries were made. They consist of eleven islands, extending in latitude from 18. 54. to 22. 15. N. and in longitude from 150. 54. to 160.24. W. They are called by the natives, Owhyhee, Mowee, Ranai, *Morstoi*, Tahoorowa, Woahoo, Atooi, *Neehieheow*, *Oreehoua*, *Morotinne*, and Tahoora, all inhabited except the two last. An account of the most remarkable of which will be found in their alphabetical order, in their proper places in this work. The climate of these islands differs very little from that of the West Indies in the same latitude, though perhaps more temperate; and there are no traces of those violent winds and hurricanes, which render the stormy months in the West Indies so dreadful. There is also more rain at the Sandwich Isles, where the mountainous parts being generally enveloped in a cloud, successive showers fall in the inland parts, with fine weather, and a clear sky, on the sea shore. Hence it is, that few of those inconveniences, to which many tropical countries are subject, either from heat or moisture, are experienced here. The winds, in the winter months, are generally from east-south-east to north-east. The vegetable productions are nearly the same as those of the other islands in this ocean; but the taro root is here of a superior quality. The bread-fruit trees thrive not in such abundance as in the rich plains of Otaheite, but produce double the quantity of fruit. The sugar-canes are of a very unusual size, some of them measuring eleven inches and a quarter in circumference, and having fourteen feet eatable. There is also a root of a brown colour, shaped like a yam, and from six to ten pounds in weight, the juice of which is very sweet, of a pleasant taste, and is an excellent substitute for sugar. The quadrupeds are confined to the three usual sorts, hogs, dogs, and rats. The fowls are also of the common sort; and the birds are beautiful and numerous, though not various. Goats, pigs, and European seeds, were left by captain Cook; but the possession of the goats soon gave rise to a contest between two districts, in which the breed was entirely destroyed. The inhabitants are undoubtedly of the same race that possesses the islands south of the equator; and in their persons, language, customs, and manners, approach nearer to the New Zealanders than to their less distant neighbours, either of the Society or Friendly Islands. They are in general about the middle size, and well made; they walk very gracefully, run nimbly, and are capable of bearing very great fatigue. Many of both sexes have fine open countenances; and the women in particular have good eyes and teeth, with a sweetness and sensibility of look, that render them very engaging. There is one peculiarity, characteristic of every part of these islands, that even in the handsomest faces there is a fulness of the nostril, without any flatness or spreading of the nose. They suffer their beards to grow, and wear their hair after various fashions. The dress of both men and women nearly resemble those of New Zealand, and both sexes wear necklaces of small variegated shells. Tattowing the body is practised by every colony of this nation. The hands and arms of the women are also very neatly marked, and they have the singular custom of tattowing the tip of the tongue. Like the New Zealanders, they have adopted the method of living together in villages, containing from an hundred to two hundred houses,

Sandwich. houses, built pretty closely together, without any order, and having a winding path between them. They are generally flanked, towards the sea, with detached walls, which are meant both for shelter and defence. These walls consist of loose stones, and the inhabitants are very dexterous in shifting them suddenly to such places as the direction of the attack may require. In the sides of the hills, or surrounding eminences, they have also little holes, or caves, the entrance to which is also secured by a fence of the same kind. They serve for places of retreat in cases of extremity, and may be defended by a single person against several assailants. Their houses are of different sizes, some of them being large and commodious, from forty to fifty feet long, and from twenty to thirty broad; while others are mere hovels. The food of the lower class consists principally of fish and vegetables, to which the people of higher rank add the flesh of dogs and hogs. The manner of spending their time admits of little variety. They rise with the sun, and, after enjoying the cool of the evening, retire to rest, a few hours after sun-set. The making of canoes, mats, &c. forms the occupations of the men; the women are employed in manufacturing cloth, and the servants are principally engaged in the plantations and fishing. Their idle hours are filled up with various amusements, such as dancing, boxing, wrestling, &c. Their agriculture and navigation bear a great resemblance to those of the South-sea islands. Their plantations, which are spread over the whole sea-coast, consist of the taro, or eddy-root, and sweet potatoes, with plants of the cloth-trees set in rows. The bottoms of their canoes are of a single piece of wood, hollowed out to the thickness of an inch, and brought to a point at each end. The sides consist of three boards, each about an inch thick, neatly fitted and lashed to the bottom part. Some of their double canoes measure 70 feet in length, three and a half in depth, and twelve in breadth. Their cordage, fish-hooks, and fishing-tackle, differ but little from those of the other islands. Among their arts must not be forgotten that of making salt, which they have in great abundance, and of a good quality. Their instruments of war are spears, daggers, clubs, and slings; and for defensive armour they wear strong mats, which are not easily penetrated by such weapons as theirs. As the islands are not united under one sovereign, wars are frequent among them, which, no doubt, contribute greatly to reduce the number of inhabitants, which, according to the proportion assigned to each island, does not exceed 400,000. The same system of subordination prevails here as at the other islands, the same absolute authority on the part of the chiefs, and the same unresisting submission on the part of the people. The government is likewise monarchical and hereditary. At Owhyhee there is a regular society of priests living by themselves, and distinct in all respects from the rest of the people. Human sacrifices are here frequent; not only at the commencement of a war, or any signal enterprise, but the death of every considerable chief calls for a repetition of these horrid rites. Notwithstanding the irreparable loss in the death of captain Cook, who was here murdered through sudden resentment and violence, they are acknowledged to be of the most mild and affectionate disposition. They live in the utmost harmony and friendship with each other; and in hospitality to strangers they are not exceeded even by the inhabitants of the Friendly Islands. Their natural capacity seems, in no respect, below the common standard of mankind; and their improvements in agriculture, and the perfection of their manufactures, are certainly adequate to the circumstances of their situation, and the natural advantages which they enjoy.

Sandys || Sanguinaria.

SANDYS (Sir Edwin), second son of Dr Edwin Sandys archbishop of York, was born about 1561, and educated at Oxford under Mr Richard Hooker, author of the Ecclesiastical Polity. In 1581 he was collated to a prebend in the cathedral of York. He travelled into foreign countries; and, upon his return, grew famous for learning, prudence, and virtue. While he was at Paris, he drew up a tract, published under the title of *Europæ Speculum*. In 1602, he resigned his prebend; and, the year following, was knighted by king James I. who employed him in several important affairs. He was dexterous in any great employment, and a good patriot. However, opposing the court with vigour in the parliament held in 1621, he, with Mr Selden, was committed to custody for a month. He died in 1629, having bequeathed 1500l. to the university of Oxford, for the endowment of a metaphysical lecture.

SANDYS (George), brother of the foregoing Sir Edwin, and youngest son of archbishop Sandys, was born in 1577. He was a most accomplished gentleman; travelled over several parts of Europe and the East; and published a relation of his journey in folio, in 1615. He made an elegant translation of Ovid's Metamorphoses; and composed some poetical pieces of his own, that were greatly admired in the times of their being written. He also paraphrased the Psalms; and has left behind him a Translation, with Notes, of one Sacred Drama written originally by Grotius, under the title of *Christus Patiens*, on which, and *Adamus Exul* and *Masenius*, is founded Lauder's impudent charge of plagiarism against our immortal Milton. Our author became one of the privy chamber to Charles I. and died in 1643.

SAN FERNANDO, near the entrance of the Golfo Dolce, in 15 degrees 18 minutes north latitude, has lately been fortified by the Spaniards, with an intent to curb the Musquito-men, logwood-cutters, and bay-men. It is a very good harbour, with safe anchorage from the north and east winds, in eight fathoms water.

SANGUIFICATION, in the animal œconomy, the conversion of the chyle into true blood. See BLOOD.

SANGUINARIA, BLOOD-WORT, in botany: A genus of the monogynia order, belonging to the polyandria class of plants; and in the natural method ranking under the 27th order, *Rhoeadæ*. The corolla is octopetalous: the calyx diphyllous; the siliqua ovate and unilocular. There is only one species, viz. the canadensis, a native of the northern parts of America, where it grows plentifully in the woods; and in the spring, before the leaves of the trees come out, the surface of the ground is in many places covered with the flowers, which have some resemblance to our wood anemone; but they have short naked pedicles, each supporting one flower at top. Some of these flowers will have 10 or 12 petals, so that they appear to have a double range of leaves, which has occasioned their being termed *double flowers*; but this is only accidental, the same roots

roots in different years producing different flowers.—The plant can bear the open air in this country, but should be placed in a loose soil and sheltered situation, not too much exposed to the sun. It is propagated by the roots; which may be taken up and parted, in September, every other year. The Indians paint themselves yellow with the juice of these plants.

SANGUISORBA, GREATER WILD BURNET, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 54th order, *Miscellaneæ*. The calyx is diphyllous; the germen situated betwixt the calyx and corolla. The most remarkable species is the officinalis, with oval spikes. This grows naturally in moist meadows in many parts of Britain. The stalks rise from two to three feet high, branching towards the top; and are terminated by thick oval spikes of flowers of a greyish brown colour, which are divided into four segments almost to the bottom. These are succeeded by four oblong cornered seeds. The leaves of this sort are composed of five or six pair of lobes placed along a midrib, terminated by an odd one. These are heart-shaped, deeply sawed on their edges, and a little downy on their under sides. The cultivation of this plant has been greatly recommended as food to cattle. See AGRICULTURE, n° 48, &c.

SANHEDRIM, or SANHEDRIN, from the Greek word Συνεδριον, which signifies a council or assembly of persons sitting together, was the name whereby the Jews called the great council of the nation, assembled in an apartment of the temple of Jerusalem to determine the most important affairs both of their church and state. This council consisted of seventy senators. The room they met in was a rotunda, half of which was built without the temple, and half within; that is, one semicircle was within the compass of the temple; the other semicircle, they tell us, was built without, for the senators to sit in; it being unlawful for any one to sit down in the temple. The Nasi, or prince of the sanhedrim, sat upon a throne at the end of the hall, having his deputy at his right hand, and his sub-deputy on his left. The other senators were ranged in order on each side.

The rabbins pretend, that the sanhedrim has always subsisted in their nation from the time of Moses down to the destruction of the temple by the Romans. They date the establishment of it from what happened in the wilderness, some time after the people departed from Sinai (Numb. xi. 16.), in the year of the world 2514. Moses, being discouraged by the continual murmurings of the Israelites, addressed himself to God, and desired to be relieved, at least, from some part of the burden of the government. Then the Lord said to him, "Gather unto me 70 men of the elders of Israel, whom thou knowest to be the elders of the people, and officers over them; and bring them unto the tabernacle of the congregation, that they may stand there with thee: And I will come down and talk with thee there; and I will take of the spirit which is upon thee, and will put it upon them; and they shall bear the burden of the people with thee, that thou bear it not thyself alone." The Lord, therefore, poured out his spirit upon these men, who began at that time to prophecy, and have not ceased from that time. The sanhedrim was composed of 70 counsellors, or rather 72, six out of each tribe; and Moses, as president, made up the number 73. To prove the uninterrupted succession of the judges of the sanhedrim, there is nothing unattempted by the partisans of this opinion. They find a proof where others cannot so much as perceive any appearance or shadow of it. Grotius may be consulted in many places of his Commentaries, and in his first book *De jure belli & pacis*, c. 3. art. 20. and *Selden de Synedriis veterum Hebræorum*. Also, Calmet's Dissertation concerning the polity of the ancient Hebrews, printed before his Comment upon the Book of Numbers.

As to the personal qualifications of the judges of this bench, their birth was to be untainted. They were often taken from the race of the priests or Levites, or out of the number of the inferior judges, or from the lesser sanhedrim, which consisted only of 23 judges.—They were to be skilful in the law, as well traditional as written. They were obliged to study magic, divination, fortune-telling, physic, astrology, arithmetic, and languages. The Jews say, they were to know to the number of 70 tongues; that is, they were to know all the tongues, for the Hebrews acknowledged but 70 in all, and perhaps this is too great a number. Eunuchs were excluded from the sanhedrim, because of their cruelty, usurers, decrepid persons, players at games of chance, such as had any bodily deformities, those that had brought up pigeons to decoy others to their pigeon-houses, and those that made a gain of their fruits in the sabbatical year. Some also exclude the high-priest and the king, because of their too great power; but others will have it, that the kings always presided in the sanhedrim, while there were any kings in Israel.—Lastly, it was required, that the members of the sanhedrim should be of a mature age, a handsome person, and of considerable fortune. We speak now according to the notions of the rabbins, without pretending to warrant their opinions.

The authority of the great sanhedrim was vastly extensive. This council decided such causes as were brought before it by way of appeal from the inferior courts. The king, the high-priest, the prophets, were under its jurisdiction. If the king offended against the law, for example, if he married above 18 wives, if he kept too many horses, if he hoarded up too much gold and silver, the sanhedrim had him stripped and whipped in their presence. But whipping, they say, among the Hebrews was not at all ignominious; and the king bore this correction by way of penance, and himself made choice of the person that was to exercise this discipline over him. Also, the general affairs of the nation were brought before the sanhedrim. The right of judging in capital cases belonged to this court, and this sentence could not be pronounced in any other place, but in the hall called *Laschat-haggazith*, or the *hall paved with stones*, supposed by some to be the Λιθοστρωτον, or *pavement*, mentioned in John xix. 13. From whence it came to pass, that the Jews were forced to quit this hall when the power of life and death was taken out of their hands, 40 years before the destruction of their temple, and three years before the death of Jesus Christ. In the time of Moses this council was held at the door of the tabernacle of the testimony. As soon as the people were in possession of the land of promise, the sanhedrim followed the tabernacle. It was kept successively

sively at Gilgal, at Shiloh, at Kirjath-jearim, at Nob, at Gibeon in the house of Obed-edom; and lastly, it was settled at Jerusalem, till the Babylonish captivity. During the captivity it was kept up at Babylon. After the return from Babylon, it continued at Jerusalem to the time of the Sicarii, or Assassins. Then finding that these profligate wretches, whose number increased every day, sometimes escaped punishment by the favour of the president or judges, it was removed to Hanoth, which were certain abodes situated, as the rabbins tell us, upon the mountain of the temple. From thence they came down into the city of Jerusalem, withdrawing themselves by degrees from the temple. Afterwards they removed to Jamnia, thence to Jericho, to Uzzah, to Sepharvaim, to Bethsanim, to Sephoris, last of all to Tiberias, where they continued to the time of their utter extinction. And this is the account the Jews themselves give us of the sanhedrim.

But the learned do not agree with them in all this. Father Petau fixes the beginning of the sanhedrim not till Gabinius was governor of Judea, who, according to Josephus, erected tribunals in the five principal cities of Judea; at Jerusalem, at Gadara, at Amathus, at Jericho, and at Sephora or Sephoris, a city of Galilee. Grotius places the origin of the sanhedrim under Moses, as the rabbins do; but he makes it determine at the beginning of Herod's reign. Mr Basnage at first thought that the sanhedrim began under Gabinius; but afterwards he places it under Judas Maccabæus, or under his brother Jonathan. We see indeed, under Jonathan Maccabæus, (1 Macc. xii. 6.), in the year 3860, that the senate with the high-priest sent an embassy to the Romans. The rabbins say, that Alexander Janneus, king of the Jews, of the race of the Asmonæans, appeared before the sanhedrim, and claimed a right of sitting there, whether the senators would or not. Josephus informs us, that when Herod was but yet governor of Galilee, he was summoned before the senate, where he appeared. It must be therefore acknowledged, that the sanhedrim was in being before the reign of Herod. It was in being afterwards, as we find from the Gospel and from the Acts. Jesus Christ in St Matthew (v. 22.) distinguishes two tribunals.—"Whosoever is angry with his brother without a cause shall be in danger of the judgment." This, they say, is the tribunal of the 23 judges. "And whosoever shall say to his brother Raca, shall be in danger of the council;" that is, of the great sanhedrim, which had the right of life and death, at least generally, and before this right was taken away by the Romans. Some think that the jurisdiction of the council of 23 extended to life and death also; but it is certain that the sanhedrim was superior to this council. See also Mark xiii. 9. xiv. 55. xv. 1.; Luke xxii. 52, 66.; John xi. 47.; Acts iv. 15 v. 21. where mention is made of the synedrion, or sanhedrim.

From all this it may be concluded, that the origin of the sanhedrim is involved in uncertainty; for the council of the 70 elders established by Moses was not what the Hebrews understand by the name of sanhedrim. Besides, we cannot perceive that this establishment subsisted either under Joshua, the judges, or the kings. We find nothing of it after the captivity, till the time of Jonathan Maccabæus. The tribunals erected by Gabinius were very different from the sanhedrim, which was the supreme court of judicature, and fixed at Jerusalem, whereas Gabinius established five at five different cities. Lastly, it is certain that this senate was in being in the time of Jesus Christ; but the Jews themselves inform us that they had no longer then the power of life and death (John xviii. 31.)

SANJACKS, a people inhabiting the Curdistan, or Persian mountains, living chiefly by pillage, and the scanty pittance afforded by their own mountainous country. "They were much reduced (says Mr Ives) by the late bashaw Achmet of Bagdad, who pursued them in person to their subterranean retreats, and destroyed many by the sword, and carried off great numbers of prisoners, who were sold for slaves." Notwithstanding this check, in the year 1758, they were again become so daring that they would attack caravans of 700 men, and sometimes carry all off. They are said to be worshippers of the evil principle.

SAN JUAN DE PUERTO RICO, usually called *Porto Rico*, one of the West India islands belonging to Spain, is situated in about 18. N. Lat. and between 65. 36. and 67. 45. W. Long. and is about 4[illegible] leagues long and 20 broad. The island is beautifully diversified with woods, valleys, and plains, and is extremely fertile. It is well watered with springs and rivers, abounds with meadows, is divided by a ridge of mountains running from east to west, and has a harbour so spacious that the largest ships may lie in it with safety. Before the arrival of the Spaniards it was inhabited by 4 or 500,000 people, who, in a few years, were extirpated by its merciless conquerors. Raynal says, that its whole inhabitants amounts at present only to 1500 Spaniards, Mestoes, and Mulattoes, and about 3000 negroes. Thus one of the finest islands in the West Indies has been depopulated by the cruelty, and left uncultivated by the indolence, of its possessors. But it is the appointment of Providence, who seldom permits flagrant crimes to pass unpunished, that poverty and wretchedness should be uniform consequences of oppression.

SANICULA, SANICLE, or *Sy-heal*, in botany: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 45th order, *Umbellitæ*. The umbels are close together, almost in a round head; the fruit is scabrous; the flowers of the disk abortive. There are three species, viz. the canadensis, marilandica, and europæa, found in many parts both of Scotland and England. This plant was long celebrated for its healing virtues; but it is now totally disregarded.

SANIDIUM, in natural history, the name of a genus of fossils of the class of the selenitæ, but neither of the rhomboidal nor columnar kinds, nor any other way distinguishable by its external figure; being made up of several plain flat plates.

SANIES, in medicine, a serous putrid matter, issuing from wounds. It differs from pus, which is thicker and whiter.

SANNAZARIUS (James), in Latin *Actius Syncerus Sannazarius*, a celebrated Latin and Italian poet, born at Naples in 1458. He by his wit insinuated himself into the favour of king Frederic; and, when that prince was dethroned, attended him into France, where he staid with him till his death, which happened in 1504. Sannazarius then returned into Italy, where he applied himself to polite literature, and particularly to

to Latin and Italian poetry. His gay and facetious humour made him sought for by all companies; but he was so afflicted at the news that Phillibert prince of Orange, general of the emperor's army, had demolished his country-house, that it threw him into an illness, of which he died in 1530. It is said, that being informed a few days before his death, that the prince of Orange was killed in battle, he called out, "I shall die contented, since Mars has punished this barbarous enemy of the Muses." He wrote a great number of Italian and Latin poems: among those in Latin, his *De Partu Virginis* and Eclogues are chiefly esteemed; and the most celebrated of his Italian pieces is his *Arcadia*.

SANTA CRUZ, a large island in the South Sea, and one of the most considerable of those of Solomon, being about 250 miles in circumference. W. Long. 130. 0. S. Lat. 10. 21.

SANTA Cruz, or St CROIX, a small and unhealthy island, situated in about 64 degrees west longitude and 18 north latitude. It is about eighteen leagues in length, and from three to four in breadth. In 1643 it was inhabited by Dutch and English, who soon became enemies to each other; and in 1650 were both driven out by 1200 Spaniards, who arrived there in five ships. The triumph of these lasted but a few months. The remains of that numerous body, which were left for the defence of the island, surrendered without resistance to 160 French, who had embarked in 1651, from St Christopher's, to make themselves masters of the island.

Raynal's History of the East and West Indies, vol. 4th, p. 49.

These new inhabitants lost no time in making themselves acquainted with a country so much disputed. On a soil, in other respects excellent, they found only one river of a moderate size, which, gliding gently almost on a level with the sea through a flat country, furnished only a brackish water. Two or three springs, which they found in the innermost parts of the island, made but feeble amends for this defect. The wells were for the most part dry. The construction of reservoirs required time. Nor was the climate more inviting to the new inhabitants. The island being flat, and covered with old trees, scarce afforded an opportunity for the winds to carry off the poisonous vapours with which its morasses clogged the atmosphere. There was but one remedy for this inconvenience; which was to burn the woods. The French set fire to them without delay; and, getting on board their ships, became spectators from the sea, for several months, of the conflagration they had raised in the island. As soon as the flames were extinguished, they went on shore again.

They found the soil fertile beyond belief. Tobacco, cotton, arnotto, indigo, and sugar, flourished equally in it. So rapid was the progress of this colony, that in 11 years from its commencement there were upon it 822 white persons, with a proportionable number of slaves. It was rapidly advancing to prosperity, when such obstacles were thrown in the way of its activity as made it decline again. This decay was as sudden as its rise. In 1696 there were no more than 147 men, with their wives and children, and 623 blacks remaining; and these were transported to St Domingo.

Some obscure individuals, some writers unacquainted with the views of government, with their secret negotiations, with the character of their ministers, with the interests of the protectors and the protected, who flatter themselves that they can discern the reason of events amongst a multitude of important or frivolous causes, which may have equally occasioned them; who do not conceive, that among all these causes the most natural may possibly be the farthest from the truth; who after having read the news, or journal of the day, with profound attention, decide as peremptorily as if they had been placed all their lifetime at the helm of the state, and had assisted at the council of kings; who are never more deceived than in those circumstance in which they display some share of penetration; writers as absurd in the praises as in the blame which they bestow upon nations, in the favourable or unfavourable opinion they form of ministerial operations: these idle dreamers, in a word, who think they are persons of importance, because their attention is always engaged on matters of consequence, being convinced that courts are always governed in their decisions by the most comprehensive views of profound policy, have supposed that the court of Versailles had neglected Santa Cruz, merely because they wished to abandon the small islands in order to unite all their strength, industry, and population, in the large ones; but this is a mistaken notion. This determination arose from the farmers of the revenue, who found that the contraband trade of Santa Cruz with St Thomas was detrimental to their interests. The spirit of finance hath in all times been injurious to commerce; it hath destroyed the source from whence it sprang. Santa Cruz continued without inhabitants, and without cultivation, till 1733, when it was sold by France to Denmark for 30,750 l. Soon after the Danes built there the fortress of Christianstadt. Then it was that this northern power seemed likely to take deep root in America. Unfortunately, she laid her plantations under the yoke of exclusive privileges. Industrious people of all sects, particularly Moravians, strove in vain to overcome this great difficulty. Many attempts were made to reconcile the interests of the colonists and their oppressors, but without success. The two parties kept up a continual struggle of animosity, not of industry. At length the government, with a moderation not to be expected from its constitution, purchased, in 1754, the privileges and effects of the company. The price was fixed at L. 412,500, part of which was paid in ready money, and the remainder in bills upon the treasury, bearing interest. From this time the navigation to the islands was opened to all the subjects of the Danish dominions. Of 345 plantations, which were seen at Santa Cruz, 150 were covered with sugar canes, and every habitation is limited to 3000 Danish feet in length, and 2000 in breadth. It is inhabited by 2136 white men, by 22,244 slaves, and by 155 freedmen.

SANTA Cruz, in Teneriff. See TENERIFF.

SANTA Cruz, a town of Africa, on the coast of Barbary, and in the province of Suez and kingdom of Morocco, with a harbour and a fort. The Moors took it from the Portuguese in 1536. It is seated at the extremity of Mount Atlas, on the Cape Aguer. W. Long. 10. 7. N. Lat. 30. 38.

SANTA Cruz de la Sierra, a town of South America, and capital of a province of that name in Peru, and in the audience of Los Charcas, with a bishop's see.

fee. It is ſeated at the foot of a mountain, in a country abounding in good fruits, on the river Guapy. W. Long. 59. 35. S. Lat. 20. 40.

Santa Fe de Bogota, a town of South America, and capital of New Granada, with an archbiſhop's ſee, a ſupreme court of juſtice, and an univerſity.

The city is ſituated at the foot of a ſteep and cold mountain, at the entrance of a vaſt and ſuperb plain. In 1774 it contained 1770 houſes, 3246 families, and 16,233 inhabitants. Population muſt neceſſarily increaſe there, ſince it is the ſeat of government, the place where the coin is ſtricken, the ſtaple of trade; and laſtly, ſince it is the reſidence of an archbiſhop, whoſe immediate juriſdiction extends over 31 Spaniſh villages, which are called towns; over 195 Indian colonies, anciently ſubdued; and over 28 miſſions, eſtabliſhed in modern times. This archbiſhop hath likewiſe, as metropolitan, a ſort of inſpection over the dioceſes of Quito, of Panama, of Caraccas, of St Martha, and of Carthagena. It is by this laſt place, though at the diſtance of 100 leagues, and by the river Magdalena, that Santa Fe keeps up its communication with Europe. There are ſilver mines in the mountains about the city. W. Long. 60. 5. N. Lat. 3 58.

SANTALUM, in botany: A genus of the monogynia order, belonging to the octandria claſs of plants; and in the natural method ranking with thoſe of which the order is doubtful. The calyx is ſuperior; the corolla monopetalous; the ſtamina placed in the tube; the ſtigma is ſimple; the fruit a berry.

The ſantalum, or ſanders, grows to the ſize of a walnut-tree. Its leaves are entire, oval, and placed oppoſite to each other. Its flower is of one ſingle piece, charged with eight ſtamina, and ſupported upon the piſtil, which becomes an inſipid berry, reſembling in form that of the laurel. Its wood is white in the circumference, and yellow in the centre when the tree is old. This difference of colour conſtitutes two kinds of ſanders, both employed for the ſame purpoſes, and having equally a bitter taſte, and an aromatic ſmell. With the powder of this wood a paſte is prepared, with which the Chineſe, Indians, Perſians, Arabians, and Turks, anoint their bodies. It is likewiſe burnt in their houſes, and yields a fragrant and wholeſome ſmell. The greateſt quantity of this wood, to which a ſharp and attenuating virtue is aſcribed, remains in India. The red ſanders, though in leſs eſtimation, and leſs generally uſed, is ſent by preference into Europe. This is the produce of a different tree, which is common on the coaſt of Coromandel. Some travellers confound it with the wood of Caliatour, which is uſed in dyeing.

The ſantalum album, or white ſanders, is brought from the Eaſt Indies in billets about the thickneſs of a man's leg, of a pale whitiſh colour. It is that part of the yellow ſanders wood which lies next the bark. Great part of it, as met with in the ſhops, has no ſmell or taſte, nor any ſenſible quality that can recommend it to the notice of the phyſician.

The ſantalum album, or yellow ſanders, is the interior part of the wood of the ſame tree which furniſhes the former, is of a pale yellowiſh colour, of a pleaſant ſmell, and a bitteriſh aromatic taſte, accompanied with an agreeable kind of pungency. This elegant wood might undoubtedly be applied to valuable medical purpoſes, though at preſent very rarely uſed. Diſtilled with water, it yields a fragrant eſſential oil, which thickens in the cold into the conſiſtence of a balſam. Digeſted in pure ſpirit, it imparts a rich yellow tincture; which being committed to diſtillation, the ſpirit ariſes without bringing over any thing conſiderable of the flavour of the ſanders. The reſiduum contains the virtues of ſix times its weight of the wood. Hoffman looks upon this extract as a medicine of ſimilar virtues to ambergris; and recommends it as an excellent reſtorative in great debilities.

SANTAREN, a handſome town of Portugal in Eſtremadura, ſeated on a mountain near the river Tajo, in a country very fertile in wheat, wine, and oil. They get in their harveſt here two months after they have ſown their corn. It was taken from the Moors in 1447. W. Long. 7. 45. N. Lat. 39. 12.

SANTAUGUSTINE. See AUGUSTINE.

SANTEN, a town of Germany, in the circle of Weſtphalia, and in the duchy of Cleves. It has a handſome church belonging to the Roman Catholics, wherein is an image of the Virgin Mary, which they pretend performs a great many miracles. Here the fine walks begin that run as far as Weſel, from which it is five miles diſtant to the north-weſt. E. Long. 6. 33. N. Lat. 51. 38.

SANTERRE, a ſmall territory of France, in Picardy; bounded on the north by Cambreſis, on the eaſt by Vermandois, on the weſt by Amienois, and on the ſouth by the river Somme. It is very fertile, and the capital town is Peronne.

SANTEUIL, or rather SANTEUL (John Baptiſt de), in Latin *Santolius Victorinus*, an excellent Latin poet, was born at Paris in 1630. Having finiſhed his ſtudies in Louis the Great's college, he applied himſelf entirely to poetry, and celebrated in his verſe the praiſes of ſeveral great men; by which he acquired univerſal applauſe. He enriched Paris with a great number of inſcriptions, which are to be ſeen on the public fountains, and the monuments conſecrated to poſterity. At length, ſome new hymns being to be compoſed for the Breviary of Paris, Claude Santeuil his brother, and M. Boſſuet, perſuaded him to undertake that work; and he ſucceeded in it with the greateſt applauſe. On which the order of Clugny deſiring him to compoſe ſome for their Breviary, he complied with their requeſt; and that order, out of gratitude, granted him letters of filiation, with an annual penſion. Santeuil was careſſed by all the learned men of his time; and had for his admirers the two princes of Conde, the father and ſon, from whom he frequently received favours. Louis XIV. alſo gave him a proof of his eſteem, by beſtowing a penſion upon him. He attended the duke of Bourbon to Dijon, when that prince went thither in order to hold the ſtates of Burgundy; and died there in 1697, as he was preparing to return to Paris. Beſides his Latin hymns, he wrote a great number of Latin poems, which have all the fire and marks of genius diſcoverable in the works of great poets.

To Santeuil we are indebted for many fine church-hymns, as above-mentioned. Santeuil read the verſes he made for the inhabitants of heaven with all the agitations of a demoniac. Deſpreaux ſaid he was the devil

devil whom God compelled to praiſe ſaints. He was among the number of poets whoſe genius was as impetuous as his muſe was decent.

La Bruyere has painted the character of this ſingular and truly original poet in the moſt lively colours. "Image a man of great facility of temper, complaiſant and docile, in an inſtant violent, choleric, paſſionate, and capricious. A man ſimple, credulous, playful, volatile, puerile; in a word, a child in gray hairs: but let him collect himſelf, or rather call forth his interior genius, I venture to ſay, without his knowledge or privacy, what ſallies! what elevation! what images! what latinity! Do you ſpeak of one and the ſame perſon, you will aſk? Yes, of the ſame; of Theodas, and of him alone. He ſhrieks, he jumps, he rolls upon the ground, he roars, he ſtorms; and in the midſt of this tempeſt, a flame iſſues that ſhines, that rejoices. Without a figure, he rattles like a fool, and thinks like a wiſe man. He utters truths in a ridiculous way; and, in an idiotic manner, rational and ſenſible things. It is aſtoniſhing to find good ſenſe diſcloſe itſelf from the boſom of buffoonery, accompanied with grimaces and contortions. What ſhall I ſay more? He does and he ſays better than he knows. Theſe are like two ſouls that are unacquainted with each other, which have each their turn and ſeparate functions. A feature would be wanting in this extraordinary portrait, if I omitted ſaying, that he has at once an inſatiable thirſt for praiſe, ready to throw himſelf at the mercy of the critics, and at the bottom ſo docile as to profit by their cenſure. I begin to perſuade myſelf that I have been drawing the portraits of two different perſons: it would not be impoſſible to find a third in Theodas; for he is a good man, a pleaſant man, an excellent man."

This poet ought not to be confounded with *Claude de Santeuil*, his brother, a learned eccleſiaſtic, who alſo wrote ſeveral hymns in the Paris Breviary under the name of *Santolius Maglioranus*, a name given him from his having lived a long time in the ſeminary of St Magliore at Paris, in quality of ſecular eccleſiaſtic. He was eſteemed not only for his poetical abilities, but alſo for his profound erudition and his exemplary piety. He died at Paris in 1684, aged 57. He wrote ſeveral other pieces of poetry, beſides his hymns, which are printed with his brother's works.

SANTILLANE, a ſea-port town of Spain, in the province of Aſturias, of which it is the capital. It is ſeated on the ſea-coaſt, 55 miles eaſt of Oviedo, and 200 north-weſt of Madrid. W. Long. 4. 33. N. Lat. 43. 30.

SANTOLINA, LAVENDER-COTTON, in botany: A genus of the order of polygamia æqualis, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The receptacle is paleaceous; there is no pappus; the calyx imbricated and hemiſpherical.

The moſt remarkable ſpecies are, 1. The chamæcypariſus, or common lavender-cotton, which has been long known in the Engliſh gardens; it was formerly titled *abrotanum fœmina*, or *female ſouthernwood*, and by the corruption of words was called *brotany* by the market-people: it grows naturally in Spain, Italy, and the warm parts of Europe. This hath a ligneous ſtalk, dividing into many branches, garniſhed with ſlender hoary leaves, that are four ways indented, and have a rank, ſtrong, odour when handled. The branches are terminated by a ſingle flower, compoſed of many hermaphrodite florets, which are fiſtular, cut into five parts at the top, of a ſulphur colour, and are included in one common ſcaly empalement, having no borders or rays. Theſe are ſucceeded by ſmall, oblong, ſtriated ſeeds, which are ſeparated by ſcaly chaff, and ripen in the empalement; the plants love a dry ſoil and a ſheltered ſituation. 2. The villoſa, with woolly leaves, has a ſhrubby ſtalk, which branches out like the former, but the plants ſeldom grow ſo tall. The branches are garniſhed very cloſely below with leaves ſhaped like thoſe of the other ſort, but ſhorter, thicker, and whiter; the flowers are much larger, and the brims of the florets are more reflexed; they are of a deeper ſulphur colour than the other. It grows naturally in Spain. 3. The decumbens, with linear leaves, is of lower ſtature than either of the former, ſeldom riſing more than 15 or 16 inches high. The branches ſpread horizontally near the ground, and are garniſhed with ſhorter leaves than either of the former, which are hoary and finely indented; the ſtalks are terminated by ſingle flowers, of a bright yellow colour, which are larger than thoſe of the firſt ſort. 4. The virens, with very long linear leaves, riſes higher than either of the former. The branches are more diffuſed; they are ſlender, ſmooth, and garniſhed with very narrow long leaves, which are of a deep green colour, but two ways indented; the ſtalks are ſlender, naked towards the top, and terminated by ſingle flowers of a gold colour. 5. The roſmarinifolia, with linear entire leaves, hath ſhrubby ſtalks, which riſe about three feet high, ſending out long ſlender branches, garniſhed with ſingle linear leaves of a pale-green colour. The ſtalks are terminated by large, ſingle, globular flowers, of a pale ſulphur colour. 6. The minor, with linear obtuſe leaves, is ſomewhat like the fifth; but the branches are ſhorter, thicker, and cloſer garniſhed with leaves, which come out in cluſters. The flower-ſtalks are ſparſedly diſpoſed, and have leaves to their top; the flowers are ſmall, and of a yellow colour. 7. The chamæmelifolia, with obtuſe woolly leaves, hath ſhrubby ſtalks, which riſe three feet high, garniſhed with broader leaves than either of the former, whoſe indentures are looſer, but double; they are hoary, and when bruiſed have an odour like chamomile. The leaves are placed pretty far aſunder, and the ſtalks are garniſhed with them to the top. The ſtalks are divided likewiſe at the top into two or three foot-ſtalks, each ſuſtaining one pretty large ſulphur-coloured flower.

All theſe plants may be cultivated ſo as to become ornaments to a garden, particularly in ſmall boſquets of ever-green ſhrubs, where, if they are artfully intermixed with other plants of the ſame growth, and placed in the front line, they will make an agreeable variety; eſpecially if care be taken to trim them twice in a ſummer, to keep them within bounds, otherwiſe their branches are apt to ſtraggle, and in wet weather to be borne down and diſplaced, which renders them unſightly; but when they are kept in order, their hoary and different-coloured leaves will have a pretty effect in ſuch plantations.—They may be propagated by planting ſlips or cuttings during the ſpring, in a

border of light fresh earth, but must be watered and shaded in hot dry weather, until they have taken root; after which they will require no farther care but to keep them clean from weeds till autumn, when they should be transplanted where they are designed to remain: but if the ground is not ready by that time to receive them, it will be proper to let them remain in the border until spring; for if they are transplanted late in autumn, they are liable to be destroyed by cold in winter.

SANTORINI, an island of the Archipelago, to the north of Candia, and to the south-west of Nanphio. It is eight miles in length, and near as much in breadth, and almost covered with pumice-stone, whence the soil in general must be dry and barren; it is, however, greatly improved by the labour and industry of the inhabitants, who have turned it into a garden. It affords a great deal of barley, plenty of cotton, and large quantities of wine. Fruit is scarce except figs; and they have neither oil nor wood. The inhabitants are all Greeks, and are about 10,000 in number. Pyrgos is the capital town, and there are several little towns and villages. They have but one spring in the island, for which reason they preserve the rain-water in cisterns. Though subject to the Turks, they choose their own magistrates. E. Long. 25. 5. N. Lat. 39. 10.

SANZIO (Raphael). See RAPHAEL.

SAO, a territory, called a kingdom, of Africa, on the gold-coast of Guinea, hardly two miles in length along the shore. It produces abundance of Indian corn, yams, potatoes, palm-wine, and oil. The inhabitants are very treacherous, and there is no dealing with them without a great deal of caution. It contains several villages, of which Sabo is the principal; and the Dutch have a fort here called *Nassau*.

SAONE, a considerable river of France, which has its source in mount Vosgue, near Darney; runs through the Franche Comte, Burgundy, Beaujolois; and falls into the Rhone at Lyons. It passes by Gray, Chalons, and Mascon.

SAP, the juice found in vegetables.

We observed, when treating of PLANTS, that it has been long disputed whether the sap of plants be analogous to the blood of animals, and circulates in the same manner. We also mentioned the conclusions that Dr Hales drew from his numerous experiments, which were all in opposition to the doctrine that the sap circulates. As the subject is curious and interesting, and as additional light has been thrown upon it of late years, we wish to communicate it to our readers as fully as our limits will permit.

As the vegetable economy is still but imperfectly understood, and experiments made for tracing the motion of the sap may lead to important discoveries, we are happy to find, that of late years this subject has been again revived. Dr Walker, professor of Natural History in the university of Edinburgh, has published in the 1st volume of the Philosophical Transactions of Edinburgh an account of a course of very accurate and ingenious experiments, accompanied with observations and conclusions made with a caution which inspires confidence, and is indeed worthy of a disciple of Bacon. He is the first person, as far as we know, who thought of comparing the thermometer with the motion of the sap.

It is well known that in the spring vegetables contain a great quantity of sap; and there are some trees, as the birch and plane, which, if wounded, will discharge a great portion of it. Whence is this moisture derived? Whether is it imbibed from the atmosphere, or does it flow from the soil through the roots? These are the questions which require first to be answered; and Dr Walker's experiments enable us to answer them with confidence.

He selected a vigorous young birch, 30 feet high and 26 inches in circumference at the ground. He bored a hole just above the ground on the 1st of February, and cut one of its branches at the extremity. He repeated this every second day; but no moisture appeared at either of the places till the 5th of May, when a small quantity flowed on making an incision near the ground. He then cut 21 incisions in the trunk of the tree, on the north side, at the distance of a foot from one another, and reaching from the ground to the height of 20 feet. The incisions were solid triangles, each side being an inch long and an inch deep, and penetrating through the bark and wood. Dr Walker visited the tree almost every day for two months, and marked exactly from which of the incisions the sap flowed. He observed that it flowed from the lowest incision first, and gradually ascended to the highest. The following table will show the progress of the sap upwards, and its correspondence with the thermometer.

The first column is the day of the month on which the observation was made; the second expresses the number of incisions from which the sap flowed on the day of the month opposite; and the third column the degree of the thermometer at noon. Some days are omitted in March, as the incisions, though made on the 5th, did not bleed till the 11th. Some days are also passed over in April, because no observation was made on account of rain.

March.	No. of I.	Ther. Noon.		March.	No. of I.	Ther. Noon.
5	—	46		30	8	52
11	2	49		31	7	62
12	2	49				
13	1	44	April	2	7	46
14	4	48		4	10	53
15	5	52		7	11	49
16	5	47		8	11	48
17	4	44		9	12	52
18	5	47		10	13	53
19	6	48		11	13	45
20	5	44		12	13	44
21	7	48		13	13	43
22	7	45		14	14	55
23	8	46		15	14	49
24	9	47		16	15	56
25	9	42		18	16	52
26	7	39		19	17	54
27	8	45		20	19	59
28	8	49		21	20	54
29	8	46		22	21	52

Dr Walker found that the sap ascends through the wood, and still more copiously between the wood and the bark; but none could be perceived ascending through the pith or the bark. He found also, that when the thermometer at noon is about 49, or between 46 and 50, the sap rises about one foot in 24 hours; that when the thermometer is about 45 at noon, it ascends about

Sap, Sapindus.

one foot in two days; and that it does not ascend at all unless the mid-day heat be above 40. He observed that it moves with more velocity through young than through old branches. In one young branch it moved through seven feet in one day, the thermometer being at 49, while it moved in the trunk of the tree only seven feet in seven days. Dr Walker has thus explained the reason why the buds on the extremities of branches unfold first; because they are placed on the youngest wood, to which the sap flows most abundantly.

The effects produced by the motion of the sap deserve to be attended to. In those parts to which it has mounted, the bark easily separates from the wood, and the ligneous circles may, without difficulty, be detached from one another. The buds begin to swell and their scales to separate, while those branches to which the sap has not ascended remain closely folded. When the sap has reached the extremities of the branches, and has thus pervaded the whole plant, it is soon covered with opening buds and ceases to bleed. The bleeding ceases first in the upper parts of the tree, and in the lower parts successively downwards, and the wood becomes dry. An inverted branch flows more copiously when cut than those which are erect. This is a proof that the ascent of the sap is not occasioned by capillary attraction, for water which has risen in a small glass tube by this attraction will not descend when the tube is inverted.

It is evident that there is an intimate connection between heat and the ascent of the sap. It did not begin to flow till the thermometer stood at a certain point: when it fell below 40, it was arrested in its progress. The south side of the tree, when the sun was bright, bled more profusely than the north side; and at sun-set the incisions at the top ceased to bleed, where it was exposed most to the cold air, while it still continued to flow from the incisions next to the ground; the ground retaining its heat longer than the air.

SAP, in sieges, is a trench, or an approach made under cover of 10 or 12 feet broad, when the besiegers come near the place, and the fire from the garrison grows so dangerous that they are not able to approach uncovered.—There are several sorts of saps; the single, which has only a single parapet; the double, having one on each side; and the flying, made with gabions, &c. In all saps traverses are left to cover the men.

SAPINDUS, the SOAP-BERRY TREE, in botany: A genus of the digynia order, belonging to the octandria class of plants; and in the natural method ranking under the 23d order, *Tribilatæ*. The calyx is tetraphyllous; the petals four; the capsules are fleshy, connate, and ventricose.

The species are four, the saponaria, spinosus, trifoliatus, and chinensis. The saponaria, with winged leaves, grows naturally in the islands of the West Indies, where it rises with a woody stalk from 20 to 30 feet high, sending out many branches garnished with winged leaves composed of several pair of spear-shaped lobes. The midrib has a membranaceous or leafy border, running on each side from one pair of lobes to the other, which is broadest in the middle between the lobes; the flowers are produced in loose spikes at the end of the branches; they are small and white, so make no great appearance. These are succeeded by oval berries as large as middling cherries, sometimes single, at others, two, three, or four are joined together; these have a saponaceous skin or cover, which incloses a very smooth roundish nut of the same form, of a shining black when ripe. The skin or pulp which surrounds the nuts is used in America to wash linen; but it is very apt to burn and destroy it if often used, being of a very acrid nature.

Saponaria || Sapphira

These plants are propagated by seeds; they must be put into small pots, and plunged into a hot-bed of tanners bark. In five or six weeks the plants will appear, when the glasses of the hot-bed should be raised every day in warm weather, to admit fresh air to the plants. In three weeks or a month after the plants appear, they will be fit to be transplanted, when they must be shaken out of the pots, and carefully parted, so as not to injure their roots, and each planted into a separate small pot, and plunged into the hot-bed again, observing to shade them from the sun until they have taken new root; after which time they must have free air admitted to them every day when the weather is warm, and will require to be frequently watered.

SAPONARIA, SOPEWORT, in botany: A genus of the digynia order, belonging to the decandria class of plants; and in the natural method ranking under the 22d order, *Caryophylleæ*. The calyx is monophyllous and naked; there are five ungulated petals; the capsule is oblong and unilocular.

There are eight species, the officinalis, vaccaria, cretica, porrigens, illyrica, ocymoides, orientalis, and lutea. The officinalis, which is a British plant, has a creeping root, so that in a short time it would fill a large space of ground. The stalks are about two feet high, and of a purplish colour. The footstalks of the flowers arise from the wings of the leaves opposite; they sustain four, five, or more purple flowers each; which have generally two small leaves placed under them. The stalk is also terminated by a loose bunch of flowers growing in form of an umbel; they have each a large swelling cylindrical empalement, and five broad obtuse petals, which spread open, of a purple colour. These are succeeded by oval capsules, with one cell filled with small seeds.—The decoction of this plant is used to cleanse and scour woollen cloths: the poor people in some countries use it instead of soap for washing; from which use it had its name.

SAPOR, TASTE. See TASTE, and ANATOMY, n° 139.

SAPOTA, PLUM, in botany. See ACHRAS.

SAPPERS, are soldiers belonging to the royal artillery, whose business it is to work at the saps, for which they have an extraordinary pay. A brigade of sappers generally consists of eight men, divided equally into two parties; and whilst one of these parties is advancing the sap, the other is furnishing the gabions, fascines, and other necessary implements. They relieve each other alternately.

SAPPHIRA, was the wife of a rich merchant in Gueldres, and equally distinguished for her beauty and her virtue. Rhinsauld, a German officer, and governor of the town of Gueldres, fell in love with her; and not being able to seduce her either by promises or presents, he imprisoned her husband, pretending that he kept up a traiterous correspondence with the enemies of the state. Sapphira yielded to the passion of the go-

vernor in order to relieve her husband from chains; but private orders had already been given to put him to death. His unhappy widow, overwhelmed with grief, complained to Charles duke of Burgundy. He ordered Rhinfauld to marry her, after having made over to her all his possessions. As soon as the deed was signed, and the marriage over, Charles commanded him to be put to death. Thus the children of a wife whom he had seduced, and of a husband whom he had murdered, became lawful heirs to all his wealth.

SAPPHIRE, a genus of precious stones, of a blue colour, and the hardest of all except the ruby and diamond. They are found in the same countries with the ruby; also in Bohemia, Alsace, Siberia, and Auvergne. M. Rome de l'Isle mentions one found at Auvergne, which appeared quite green or blue according to the position in which it was viewed. Cronstedt, however, informs us, that the blue fluor spars are frequently met with in collections under the name of *sapphires*; and it is certain from Pliny, B. 37. chap. 9. that the sapphire of the ancients was our lapis lazuli. They are seldom found of a deep blue colour throughout, or free from parallel veins; and when they are but slightly tinged, they are named *white sapphires*. The late unfortunate king of France had one with a stripe of fine yellow topaz in the middle. Some are found half green and half red, and are foliated like the ruby. The fine hard sapphires, called by the jewellers *oriental*, are of the same nature with the ruby and topaz, excepting the mere circumstance of colour. They are commonly in two oblong hexagon pyramids, joined at their base, and pointed at top; sometimes also in hexagonal columns.

The finest sapphires, like most of the gems, come from the East Indies. Russia does not produce the sapphire. In Scotland they are found of a hardness and lustre equal to the oriental, both light and deep coloured, at Benachie, and Invercauld, Aberdeenshire; Portsoy in Banffshire, and many other places. Mr Deuchar, seal-engraver in Edinburgh, has in his possession a beautiful sapphire, which was found in a double crystal. On one of these is cut a head, which was effected with the greatest difficulty, on account of its hardness; the other is cut into facets, and has a fine water, and great brilliancy.

The specific gravity of these precious stones, according to Bergman, is from 3,650 to 3,940. According to others the specific gravity of the oriental sapphires is 3,994; that of the Brasilian 3,1307; and of those from Puy in Auvergne, 4,0769. When powdered, they are fusible with borax, or microcosmic salt, into a transparent glass; and the same thing happens on treating them with magnesia alba. They are said to lose their colour by fire, and to become so hard and transparent as sometimes to pass for diamonds; but Mr Achard found this to be a mistake, and that the true sapphires are not in the least altered either in colour, hardness, or weight, by the most intense fire. Those of Puy in Auvergne, however, though by their colour and hardness they seem to approach the oriental sapphires, lose both their colour and transparency in the fire, becoming black, and even vitrifying, which plainly shows them to be of a different kind. Engestroom informs us, that the sapphires, in their rough or native state, generally crystallize in two oblong hexagonal pyramids pointed at top, and joined at their bases, but are sometimes found of an hexagonal or columnar form.—A good sapphire of ten carats is valued at 50 guineas; if it weighs 20 carats, it is valued at 200 guineas; and, if under ten carats, its value may be found by multiplying the carat at 10s. 6d. by the square of its weight.—Sapphires are preferable to common rubies for jewelling watches, on account of the homogeneous hardness of their substance; some red stones resembling rubies being met with, which are not uniformly hard.

SAPPHO, a famous poetess of antiquity, who for her excellence in her art has been called the *Tenth Muse*, was born at Mitylene in the isle of Lesbos, about 610 years before Christ. She was contemporary with Stesichorus and Alcæus; which last was her countryman, and as some think her suitor. A verse of this poet, in which he insinuates to her his passion, is preserved in Aristotle, *Rhet. lib.* i. *cap.* 9. together with the fair damsel's answer.

ALC. I fain to Sappho would a wish impart,
But fear locks up the secret in my heart.
SAP. Thy downcast looks, respect, and timid air,
Too plain the nature of thy wish declare.
If lawless, wild, inordinate desire,
Did not with thoughts impure thy bosom fire,
Thy tongue and eyes, by innocence made bold,
Ere now the secret of thy soul had told.

M. la Fevre observes, that Sappho was not in her usual good-humour when she gave so cold an answer to a request, for which, at another time, perhaps she would not have waited.—It has been thought, too, that Anacreon was one of her lovers, and his editor Barnes has taken some pains to prove it: but chronology will not admit this; since, upon inquiry, it will be found that Sappho was probably dead before Anacreon was born. Of the numerous poems this lady wrote, there is nothing remaining but some small fragments, which the ancient scholiasts have cited; a hymn to Venus, preserved by Dionysius of Halicarnassus; and an ode to one of her mistresses †: which last piece confirms a tradition delivered down from antiquity, that her amorous passion extended even to persons of her own sex, and that she was willing to have her mistresses as well as her gallants.

† See *Poetry*, n° 122.

Ovid introduces her making a sacrifice to Phaon, one of her male paramours; from which we learn, that Sappho's love for her own sex did not keep her from loving ours. She fell desperately in love with Phaon, and did all she could to win him; but in vain: upon which she threw herself headlong from a rock, and died. It is said that Sappho could not forbear following Phaon into Sicily, whither he retired that he might not see her; and that during her stay in that island she probably composed the hymn to Venus, still extant, in which she begs so ardently the assistance of that goddess. Her prayers, however, proved ineffectual: Phaon was cruel to the last degree. The unfortunate Sappho was forced to take the dreadful leap; she went to the promontory Leucas, and threw herself into the sea. The cruelty of Phaon will not surprise us so much, if we reflect, that she was a widow (for she had been married to a rich man in the isle of Andros, by whom she had a daughter, named *Cleis*); that she had never been hand-

Saraband || Saragossa.

some; that she had observed no measure in her passion to both sexes; and that Phaon had long known all her charms. She was, however, a very great wit, and for that alone deserves to be remembered. The Mitylenians held her merit in such high esteem, that they paid her sovereign honours after her death, and stamped their money with her image. The Romans afterwards erected a noble statue of porphyry to her; and in short, ancients as well as moderns have done honour to her memory. Vossius says, that none of the Greek poets excelled Sappho for sweetness of verse; and that she made Archilochus the model of her style, but at the same time took care to soften the severity of his expression. It must be granted, says Rapin, from what is left us of Sappho, that Longinus had great reason to extol the admirable genius of this woman; for there is in what remains of her something delicate, harmonious, and impassioned to the last degree.

SARABAND, a musical composition in the triple time, the motions of which are slow and serious.

Saraband is also a dance to the same measure, which usually terminates when the hand that beats the time falls; and is otherwise much the same as the minuet.

The saraband is said to be originally derived from the Saracens, and is usually danced to the sound of the guitar or castanettes.

SARACA, in botany; a genus of the hexandria order, belonging to the diadelphia class of plants.—There is no calyx: the corolla is funnel-shaped and quadrifid; the filaments are on each side the throat of the corolla; the legumen is pedicellated.

SARACENS, the inhabitants of Arabia; so called from the word *sara*, which signifies a desert, as the greatest part of Arabia is; and this being the country of Mahomet, his disciples were called Saracens.

SARAGOSSA, a city of Spain, in the kingdom of Arragon, with an archbishop's see, an university, and a court of inquisition. It is said to have been built by the Phœnicians; and the Romans sent a colony here in the reign of the emperor Augustus, whence it had the name of *Cæsar Augustus*, which by corruption has been changed into Saragossa. It is a large, handsome, and well-built town. The streets are long, broad, well-paved, and very clean, and the houses from three to six stories high. It is adorned with many magnificent buildings; and they reckon 17 large churches, and 14 handsome monasteries, not to mention others less considerable. The river Ebro runs cross the place, dividing it into two; and on its banks is a handsome quay, which serves for a public walk. The Holy-street is the largest, and so broad that it may be taken for a square; and here they have their bull-fights: in this street there are several noblemens families, particularly that of the viceroy. The convents are handsome and richly adorned, as well as the churches. The cathedral church is a spacious building, after the Gothic taste; but the finest church is that of Nuestra Signora del Pilar, seated on the side of the Ebro, and is a place of the greatest devotion in Spain. They tell us the Virgin appeared to St James, who was preaching the gospel, and left him her image, with a handsome pillar of jasper: it is still in this church which they pretend is the first in the world built to her honour. This image stands on a marble pillar, with a little Jesus in her arms; but the place is so dark, that it cannot be seen without the assistance of lamps, which are 50 in number, and all of silver. There are also chandeliers and balustrades of massy silver. The ornaments of this image are the richest that can be imagined, her crown being full of precious stones of an inestimable price; in short, there is scarce any thing to be seen but gold and jewels, and a vast number of people come in pilgrimage hither. The town-house is a sumptuous structure, adorned with fine columns: in the hall are the pictures of all the kings of Arragon; and in a corner of it St George on horseback, with a dragon of white marble under him. It is seated in a very large plain, where the Ebro receives two other rivers; and over it are two bridges, one of stone and the other of wood, which last has been thought the most beautiful in Europe. A victory was obtained here over the French and Spaniards in 1710, but it was abandoned by the allies soon after. It is 97 miles west by north of Tarragona, 137 west of Barcelona, and 150 north-east of Madrid. W. Long. 0. 48. N. Lat. 41. 47.

Saranne || Sarcophagus.

SARANNE. See LILIUM.

SARCASM, in rhetoric, a keen bitter expression which has the true point of satire, by which the orator scoffs and insults his enemy: such as that of the Jews to our Saviour; "He saved others, himself he cannot save."

SARCOCELE, in surgery, a spurious rupture or hernia, wherein the testicle is considerably tumefied or indurated, like a scirrhous, or much enlarged by a fleshy excrescence, which is frequently attended with acute pains, so as to degenerate at last into a cancerous disposition. See SURGERY.

SARCOCOLLA, a concrete juice brought from Persia and Arabia, in small whitish-yellow grains, with a few of a reddish and sometimes of a deep red colour mixed with them; the whitest tears are preferred, as being the freshest: its taste is bitter, accompanied with a dull kind of sweetness. This drug dissolves in watery liquors, and appears chiefly to be of the gummy kind, with a small admixture of resinous matter. It is principally celebrated for conglutinating wounds and ulcers (whence its name σαρκοκολλα *flesh-glue*); a quality which neither this nor any other drug has any just title to.

SARCOLOGY, is that part of anatomy which treats of the soft parts, *viz.* the muscles, intestines, arteries, veins, nerves, and fat.

SARCOMA, in surgery, denotes any fleshy excrescence.

SARCOPHAGUS, in antiquity, a sort of stone coffin or grave, wherein the ancients laid those they had not a mind to burn.

The word, as derived from the Greek, literally signifies *flesh-eater*; because at first they used a sort of stone for the making of tombs, which quickly consumed the bodies. See the following article.

SARCOPHAGUS, or *Lapis Assius*, in the natural history of the ancients, a stone much used among the Greeks in their sepultures, is recorded to have always perfectly consumed the flesh of human bodies buried in it in forty days. This property it was much famed for, and all the ancient naturalists mention it. There was another very singular quality also in it, but whether in all, or only in some peculiar pieces of it, is not known: that is, its turning into stone any thing that was put into vessels made of it. This is recorded only

only by Mutianus and Theophrastus, except that Pliny had copied it from these authors, and some of the later writers on these subjects from him. The account Mutianus gives of it is, that it converted into stone the shoes of persons buried in it, as also the utensils which it was in some places customary to bury with the dead, particularly those which the person while living most delighted in. The utensils this author mentions, are such as must have been made of very different materials; and hence it appears that this stone had a power of consuming not only flesh, but that its petrifying quality extended to substances of very different kinds. Whether ever it really possessed this last quality has been much doubted; and many, from the seeming improbability of it, have been afraid to record it. What has much encouraged the general disbelief of it is, Mutianus's account of its taking place on substances of very different kinds and textures; but this is no real objection, and the whole account has probably truth in it. Petrifactions in those early days might not be distinguished from incrustations of sparry and stony matter on the surfaces of bodies only, as we find they are not with the generality of the world even to this day; the incrustations of spar on mosses and other substances in some of our springs, being at this time called by many *petrified mosses*, &c. and incrustations like these might easily be formed on substances enclosed in vessels made of this stone, by water passing through its pores, dislodging from the common mass of the stone, and carrying with it particles of such spar as it contained; and afterwards falling in repeated drops on whatever lay in its way, it might again deposit them on such substances in form of incrustations. By this means, things made of ever so different matter, which happened to be inclosed, and in the way of the passage of the water, would be equally incrusted with and in appearance turned into stone, without regard to the different configuration of their pores and parts.

The place from whence the ancients tell us they had this stone was Assos, a city of Lycia, in the neighbourhood of which it was dug; and De Boot informs us, that in that country, and in some parts of the East, there are also stones of this kind, which, if tied to the bodies of living persons, would in the same manner consume their flesh. *Hill's Notes on Theophrastus*, p. 14.

SARCOTICS, in surgery, medicines which are supposed to generate flesh in wounds.

SARDANAPALUS, the last king of Assyria, whose character is one of the most infamous in history. He is said to have sunk so far in depravity, that, as far as he could, he changed his very sex and nature. He clothed himself as a woman, and spun amidst companies of his concubines. He painted his face, and behaved in a more lewd manner than the most lascivious harlot. In short, he buried himself in the most unbounded sensuality, quite regardless of sex and the dictates of nature. Having grown odious to all his subjects, a rebellion was formed against him by Arbaces the Mede and Belesis the Babylonian. They were attended, however, with very bad success at first, being defeated with great slaughter in three pitched battles. With great difficulty Belesis prevailed upon his men to keep the field only five days longer; when they were joined by the Bactrians, who had come to the assistance of Sardanapalus, but had been prevailed upon to renounce their allegiance to him. With this reinforcement they twice defeated the troops of Sardanapalus, who shut himself up in Nineveh the capital of his empire. The city held out for three years; at the end of which, Sardanapalus finding himself unable to hold out any longer, and dreading to fall into the hands of an enraged enemy, retired into his palace, in a court of which he caused a vast pile of wood to be raised; and heaping upon it all his gold and silver, and royal apparel, and at the same time inclosing his eunuchs and concubines in an apartment within the pile, he set fire to it, and so destroyed himself and all together.

SARDINIA, an island of the Mediterranean, bounded by the strait which divides it from Corsica on the north; by the Tuscan sea, which flows between this island and Italy, on the east; and by other parts of the Mediterranean sea on the south and west. It is about 140 miles in length and 70 in breadth, and contains 420,000 inhabitants. The revenue arises chiefly from a duty upon salt, and is barely sufficient to defray the expences of government; but it certainly might be considerably augmented, as the soil produces wine, corn, and oil, in abundance. Most of the salt that is exported is taken by the Danes and Swedes; the English formerly took great quantities for Newfoundland, but having found it more convenient to procure it from Spain and Portugal, they now take little or none. A profitable tunny fishery is carried on at the south-west part of the island, but it is monopolized by the Duke de St Pierre, and a few more people, who happen to be proprietors of the adjoining land. Wild boars abound in the hilly parts of the island, and here are some few deer, not so large as those in Britain, but in colour and make exactly the same. Beeves and sheep are also common, as well as horses.

The feudal system still subsists in a limited degree, and titles go with their estates, so that the purchaser of the latter inherits the former. The regular troops seldom exceed 2000 men; but the militia amount to near 26,000, of whom 11,000 are cavalry. Their horses are small, but uncommonly active. In a charge, we should beat them: but, on a march, they would be superior to us. The country people are generally armed; but notwithstanding their having been so long under the Spanish and Italian government, assassinations are by no means frequent; and yet by the laws of the country, if a man stabs another without premeditated malice, within four hours after quarrelling with him, he is not liable to be hanged. On the other hand, the church affords no protection to the guilty. The Sardinians are not at all bigoted; and, next to the Spaniards, the English are their favourites. The whole island is subject to the Duke of Savoy, who enjoys the title of king of Sardinia. See CAGLIARI.

There is in this island a pleasing variety of hills and valleys, and the soil is generally fruitful; but the inhabitants are a slothful generation, and cultivate but a little part of it. On the coast there is a fishery of anchovies and coral, of which they send large quantities to Genoa and Leghorn. This island is divided into two parts; the one, called *Capo-di-Cagliari*, lies to the south; and the other *Capo-di Lugary*, which is seated to the north. The principal towns are Cagliari the capital, Oristagno, and Sassari.

Sardinia.

Sutherland's Tour up the Straits.

SARDIS, or SARDES, now called *Sardo* or *Sart*, is an ancient town of Natolia in Asia, about 40 miles east of Smyrna. It was much celebrated in early antiquity, was enriched by the fertility of the soil, and had been the capital of the Lydian kings. It was seated on the side of mount Tmolus; and the citadel, placed on a lofty hill, was remarkable for its great strength. It was the seat of King Crœsus, and was in his time taken by Cyrus; after which the Persian Satrapas or commandant resided at Sardis as the emperor did at Susa. The city was also taken, burnt, and then evacuated by the Milesians in the time of Darius, and the city and fortress surrendered on the approach of Alexander after the battle of Granicus. Under the Romans Sardis was a very considerable place till the time of Tiberius Cæsar, when it suffered prodigiously by an earthquake. The munificence of the emperor, however, was nobly exerted to repair the various damages it then sustained. Julian attempted to restore the heathen worship in the place. He erected temporary altars where none had been left, and repaired the temples if any vestiges remained. In the year 400 it was plundered by the Goths, and it suffered considerably in the subsequent troubles of Asia. On the incursion of the Tartars in 1304, the Turks were permitted to occupy a portion of the citadel, separated by a strong wall with a gate, and were afterwards murdered in their sleep. The site of this once noble city is now green and flowery, the whole being reduced to a poor village, containing nothing but wretched huts. There are, however, some curious remains of antiquity about it, and some ruins which display its ancient grandeur. See *Chandler's Travels in Asia Minor*, p. 251, &c.

There is in the place a large caravansary, where travellers may commodiously lodge. The inhabitants are generally shepherds, who lead their sheep into the fine pastures of the neighbouring plain. The Turks have a mosque here, which was a Christian church, at the gate of which there are several columns of polished marble. There are a few Christians, who are employed in gardening. E. Long. 28. 5. N. Lat. 37. 51.

SARDONIUS RISUS, *Sardonian Laughter*. A convulsive involuntary laughter; thus named from the herba sardonia, which is a species of ranunculus, and is said to produce such convulsive motions in the cheeks as resemble those motions which are observed in the face during a fit of laughter. This complaint is sometimes speedily fatal. If the ranunculus happens to be the cause, the cure must be attempted by means of a vomit, and frequent draughts of hydromel with milk.

SARDONYX, a precious stone consisting of a mixture of the chalcedony and carnelian, sometimes in strata, but at other times blended together. It is found, 1. Striped with white and red strata, which may be cut in *cameo* as well as the onyx. 2. White with red dentritical figures, greatly resembling the mocha-stone; but with this difference, that the figures in the sardonyx are of a red colour, in the other black. There is no real difference, excepting in the circumstance of hardness, between the onyx, carnelian, chalcedony, sardonyx, and agate, notwithstanding the different names bestowed upon them. Mongez informs us, that the yellow, or orange-coloured agates, with a wavy or undulating surface, are now commonly called sardonyx. See CARNELIAN and ONYX.

SARGUS, in ichthyology. See SPARUS.

SARIMPATAM, a country of Indostan, lying at the back of the dominions of the Samorin of Malabar, and which, as far as we know, was never subdued by any foreign power. Mr Grose relates, that "it has been constantly a maxim with the inhabitants of this country never to make any but a defensive war; and even then, not to kill any of their adversaries in battle, but to cut off their noses. To this service the military were peculiarly trained up, and the dread of the deformity proved sufficiently strong to keep their neighbours, not much more martial than themselves, from effectually attacking them."

SARMENTOSÆ (from *sarmentum*, a long shoot like that of a vine); the name of the 11th class in Linnæus's Fragments of a Natural Method, consisting of plants which have climbing stems and branches, that, like the vine, attach themselves to the bodies in their neighbourhood for the purpose of support. See BOTANY, p. 459.

SAROTHRA, in botany: A genus of the trigynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 20th order, *Rotaceæ*. The corolla is pentapetalous; the capsule unilocular, trivalved, and coloured.

SARPLAR *of* WOOL, a quantity of wool, otherwise called a *pocket* or *half-sack*; a sack containing 80 tod; a tod two stone; and a stone 14 pounds.—In Scotland it is called *sarpliath*, and contains 80 stone.

SARRACONIA, in botany: A genus of the monogynia order, belonging to the polyandria class of plants; and in the natural method ranking under the 54th order, *Miscellaneæ*. The corolla is pentapetalous; the calyx is double, and triphyllous below; pentaphyllous above; the capsule quinquelocular; the style has a stigma of the form of a shield.

SARSAPARILLA, in botany. See SMILAX.

SARTORIUS, in ANATOMY. See there, *Table of the Muscles*.

OLD SARUM, in Wilts, about one mile north of New Sarum or Salisbury, has the ruins of a fort which belonged to the ancient Britons; and is said also to have been one of the Roman stations. It has a double intrenchment, with a deep ditch. It is of an orbicular form, and has a very august look, being erected on one of the most elegant plans for a fortress that can be imagined. In the north-west angle stood the palace of the bishop, whose see was removed hither from Wilton and Sherborn; but the bishop quarrelling with King Stephen, he seized the castle and put a garrison into it, which was the principal cause of its destruction, as the see was soon after removed from hence to Salisbury in 1219. The area of this ancient city is situated on an artificial hill, whose walls were three yards thick, the ruins of which in many places in the circumference are still to be seen, and the tracks of the streets and cathedral church may be traced out by the different colour of the corn growing where once the city stood. Here synods and parliaments have formerly been held, and hither were the states of the kingdom summoned to swear fidelity to William the Conqueror. Here also was a palace of the British and Saxon kings, and of the Roman emperors; which was deserted in the reign of Henry III. for want of water, so that one farm-house is all that is left of this ancient city; yet it is called the *Borough*.

rough of Old Sarum, and ſends two members to parliament, who are choſen by the proprietors of certain adjacent lands.

In February 1795 a ſubterraneous paſſage was diſcovered at this place, of which we have the following account in the Gentleman's Magazine for March, in a letter dated Saliſbury, Feb. 10. "Some perſons of Saliſbury on Saturday laſt went to the upper verge of the fortification (the citadel), and on the right-hand, after they had reached the ſummit, diſcovered a large hole. They got a candle and lantern, and went down a flight of ſteps for more than 30 yards. It was an arched way ſeven feet wide, neatly chiſſeled out of the ſolid rock or chalk. It is probable the crown of the arch gave way from the ſudden thaw, and fell in. There is a great deal of rubbiſh at the entrance. It appears to be between ſix and ſeven feet high, and a circular arch overhead all the way. Theſe particulars I learned from the perſon who himſelf explored it; but was afraid to go farther leſt it might fall in again and bury him. He thinks it turns a little to the right towards Old Sarum houſe, and continues under the foſſe till it reached the outer verge. The marks of a chiſſel, he ſays, are viſible on the ſide. There are two large pillars of ſquare-ſtone at the entrance, which appear to have had a door at foot. They are 18 inches by 27, of good free-ſtone, and the maſon-work is extremely neat. The higheſt part of the archway is two feet below the ſurface of the ground.

"It is all now again filled up by order of farmer Whitchurch, who rents the ground of Lord Camelford, and thinks curioſity would bring ſo many people there as to tread down his graſs whenever graſs ſhall be there. I went into it 30 yards, which was as far as I could get for the rubbiſh. I meaſured it with a line, and found it extend full 120 feet inwards from the two pillars ſuppoſed to be the entrance; then onwards it appeared to be filled to the roof with rubbiſh. By meaſuring with the ſame line on the ſurface of the earth, I found it muſt go under the bottom of the outer bank of the outer trench; where I think the opening may be found by digging a very little way. Whether it was a Roman or a Norman work it is difficult to ſay; but it certainly was intended as a private way to go into or out of the caſtle; and probably a fort or ſtrong caſtle was built over the outer entrance. I looked for inſcriptions or coins, but have not heard of any being found."

SASAFRAS. See LAURUS.

SASHES, in military dreſs, are badges of diſtinction worn by the officers of moſt nations, either round their waiſt or over their ſhoulders. Thoſe for the Britiſh army are made of crimſon ſilk: for the Imperial army crimſon and gold; for the Pruſſian army black ſilk and ſilver; the Hanoverians yellow ſilk; the Portugueſe crimſon ſilk with blue taſſels.

SASINE, or SEISIN. See LAW, N° clxiv. 15, &c.

SASSA. See MYRRH, OPOCALPASUM, and *Bruce's Travels*, Vol. V. p. 27, &c.

SATAN, a name very common in Scripture, means the devil or chief of the fallen angels. See DEVIL.

SATELLITE, in aſtronomy, the ſame with a ſecondary planet or moon.

SATIRE. See SATYR.

SATRAPA, or SATRAPES, in Perſian antiquity, denotes an admiral; but more commonly the governor of a province.

SATTIN, a gloſſy kind of ſilk ſtuff, the warp of which is very fine, and ſtands ſo as to cover the coarſer woof.

SATTINET, a ſlight thin kind of ſattin, commonly ſtriped, and ordinarily uſed by the ladies for ſummer night-gowns.

SATURANTS, in anatomy, the ſame with ABSORBENTS.

SATURATION, in chemiſtry, is the impregnating an acid with an alkali, or *vice verſa*, till either will receive no more, and the mixture will then become neutral.

SATURDAY, the ſeventh and laſt day of the week, ſo called from the idol Seater, worſhipped on this day by the ancient Saxons, and thought to be the ſame as the Saturn of the Latins.

SATUREIA, SAVORY, in botany: A genus of the gymnoſpermia order, belonging to the didynamia claſs of plants; and in the natural method ranking under the 42d order, *Verticillatæ*. The ſegments of the corolla are nearly equal; the ſtamina ſtanding aſunder.

Species. 1. The hortenſis, or ſummer ſavory, is an annual plant, which grows naturally in the ſouth of France and Italy, but is cultivated in this country both for the kitchen and medicinal uſe. 2. The montana, or winter ſavory, is a perennial plant growing naturally in the ſouth of France and Italy, but is cultivated in gardens both for culinary and medicinal purpoſes.

Culture. Both kinds are propagated by ſeeds. Thoſe of the firſt kind ſhould be ſown in the beginning of April upon a bed of light earth, either where they are to remain, or for tranſplanting. If the plants are to ſtand unremoved, they ſhould be ſown thinly; but if they are to be tranſplanted, they may be ſown cloſer. The ſecond ſpecies may be ſown upon a poor dry ſoil, where the plants will endure the ſeereſt winters, though they are often killed by the froſt when planted in good ground. The plants will continue ſeveral years; but when they are old, the ſhoots will be ſhot and not ſo well furniſhed with leaves: it will therefore be proper to raiſe a ſupply of young plants every year.

Uſes. Summer ſavory is a very warm pungent aromatic; and affords in diſtillation with water a ſubtile eſſential oil, of a penetrating ſmell, and very hot acrid taſte. It yields little of its virtues by infuſion to aqueous liquors; rectified ſpirit extracts the whole of its taſte and ſmell, and elevates nothing in diſtillation.

SATURN, in aſtronomy, one of the planets of our ſolar ſyſtem, revolving at the diſtance of more than 900 millions of miles from the ſun. See ASTRONOMY, n 31, 104, 109, 191, and 269.

Dr Herſchel, who has ſo much ſignalized himſelf by his diſcoveries in the celeſtial regions, has not omitted to make his obſervations on this planet, which he conſiders as one of the moſt engaging objects that aſtronomy offers to our view. His attention was firſt drawn to it in the year 1774, when he ſaw its ring retembling in appearance a narrow line, extending on both ſides not much leſs than the diameter of the planet's diſk. The obſervation was taken with a five and an half feet reflector

flection on the 17th of March; and on the 3d of April, the same year, when the planet appeared totally deprived of this noble appendage, by reason of the edge of the ring being then turned directly towards the earth, and invisible on account of its thinness or incapacity to reflect the light to such a distance. During the succeeding year, the ring appeared gradually opened, and at last assumed the shape of an ellipse. "It should be noticed (says he), that the black disk or belt upon the ring of Saturn is not in the middle of its breadth. Nor is the ring subdivided by many such lines, as has been represented in several treatises of astronomy; but that there is one single, dark, considerably broad line, belt, or zone, upon the ring, which I have always permanently found in the place where my figure represents it."

This zone, which is on the northern part of the ring, does not change its shape or colour like the belts of Jupiter, so that it is probably owing to some permanent projection. It cannot, however, be the shadow of a chain of mountains, as it is visible all round the ring: and there could be no shades visible at the ends of the anæ, on account of the direction of the sun's illumination, which would be in the line of the chain; and the supposed argument will hold good against the supposition of caverns or concavities. It is likewise evident, that this dark zone is contained between two concentric circles, as all the phenomena answer to the projection of such a zone. The Doctor gives a figure, representing the planet as it appeared to him on the 10th of May 1780; whence we see that the zone is continued all the way round, with a gradual decrease towards the middle, answering to the appearance of a narrow circular plane projected into an ellipsis. See Philosoph. Transf. for 1790, p. 3, &c.

It hath been conjectured, that this appearance is owing to a division of the ring, or rather that there are two rings about the planet; "but (says Dr Herschel) if one ring, of a breadth so considerable as that of Saturn, is justly to be esteemed the most wonderful arch that by the laws of gravity can be held together, how improbable must it appear to suppose it subdivided into narrow slips of rings, which by this separation will be deprived of a sufficient depth, and thus lose the only dimension which can keep them from falling upon the planet? It is true, indeed, that it may revolve with such velocity as greatly to assist its strength, and that in the subdivisions, of course, the different velocities for each division may be equally supposed to keep them up."

As to the substance of the ring, the Doctor supposes it to be no less solid than that of Saturn himself. Thus in the two figures given with the Doctor's Dissertation in the Philosophical Transactions above referred to, the shadow of the planet is delineated upon the ring as it actually appeared, according to the situation of the sun; and in like manner we will see the shadow of the ring upon the planet: and if we deduce the quantity of matter contained in the planet from the power by which the satellites are preserved in their orbits, the ring must also be taken into account. It is indeed evident that the ring exerts a very considerable force upon these bodies, since we find them affected with many irregularities in their motions, which we cannot properly ascribe to any other cause than the quantity of matter contained in the ring; or, at least, it ought to be allowed to have a proper share in producing them.

The ring seems to be endowed with a greater reflective power than the body of the planet; and the Doctor gives instances of his seeing part of the ring brighter than Saturn himself, as well as of his seeing it plainly through a telescope which could scarcely afford light enough for the planet. The most remarkable property of this wonderful ring, however, is its extreme thinness. "When we were nearly in the plane of the ring (says our author), I have repeatedly seen the first, second, and third satellites, nay even the sixth and seventh, pass before and behind the ring in such a manner that they served as excellent micrometers to estimate its thickness. It may be proper to mention a few instances, especially as they will serve to solve some phenomena that have been remarked by other astronomers, though they have not been accounted for in a manner consistently with other known facts. July 18th 178[illegible], at 19h 41′ 9″, sidereal time, the first satellite seemed to hang upon the following arm, declining a little towards the north, and I saw it gradually advance upon it towards the body of Saturn; but the ring was not so thick as the lucid point. July 23d, at 19h 41′ 8″; the second satellite was a very little preceding the ring; but the ring appeared to be less than half the thickness of the satellite. July 27th, at 20h 15′ 12″, the second satellite was about the middle, upon the following arm of the ring, and towards the south; and the sixth satellite on the farther end towards the north; but the arm was thinner than either of them. Aug. 29th, at 22h 12′ 55″, the third satellite was upon the ring, near the end of the preceding arm, when the latter seemed not to be the fourth, or at most the third part of the diameter of the satellite; which, in the situation it was, I took to be less than one single second in diameter. At the same time, I also saw the seventh satellite following the third, at a little distance, in the shape of a bead upon a thread, projecting on both sides of the same arm. Hence also we are sure that the arm appeared thinner than the seventh satellite, which is considerably smaller than the sixth, which again is less than the first. August 31st, at 20h 28′ 26″, the preceding arm was loaded about the middle with the third satellite. October 15th, at 0h 43′ 44″, I saw the sixth satellite, without obstruction, about the middle of the preceding arm, though the ring was but barely visible with my 40 feet reflector, even while the planet was in the meridian. However, we were then a little inclined to the plane of the ring, and the third satellite, when it came near its conjunction with the first, was so situated, that it must have partly covered it a few minutes after I lost it behind my house. In all these observations, the ring did not in the least interfere with my view of the satellites. October 16th, I followed the sixth and seventh satellites up to the very disk of the planet; and the ring, which was extremely faint, did not in the least obstruct my seeing them gradually approach the disk, where the seventh vanished at 21h 46′ 44″, and the sixth at 22h 36′ 44″. There is, however, some suspicion, that by a refraction through some very rare atmosphere on the two planes of the ring, the satellites might be lifted up and depressed so as to become visible on both sides of the ring, even though the latter should be equal in thickness to the diameter of the smallest satellite, which may amount to 1000 miles.—As for the arguments of its incredible thinness, which some

Sat. some astronomers have brought from the short time of its being invisible when the earth passes through its plane, we cannot set much value upon them; for they must have supposed the edge of the ring, as they have also represented it in their figures, to be square; but there is the greatest reason to suppose it either spherical or spheroidal; in which case evidently the ring cannot disappear for any long time. Nay, I may venture to say, that the ring cannot possibly disappear, on account of its thinness; since, either from the edge or the sides, even if it were square on the corners, it must always expose to our sight some part which is illuminated by the rays of the sun; and that this is plainly the case we may conclude from its being visible in my telescopes during the time when others of less light had lost it; and when evidently we were turned towards the unenlightened side, so that we must either see the rounding side of the unenlightened edge, or else the reflection of the light of Saturn upon the side of the darkened ring, as we see the reflected light of the earth on the darkened part of the new moon. I will not, however, take upon me to decide which of the two may be the case, especially as there are other very strong reasons which induce us to think that the edge of the ring is of such a nature as not to reflect much light."

Several astronomers have supposed that the ring of Saturn is full of mountains and inequalities, like the moon; and of this opinion Dr Herschel himself was for a considerable time, till happening to observe one of these lucid points with attention for a considerable time, he saw it leave the ring altogether, and show itself as a satellite never before observed. With regard to the ring itself, he concludes his observations in these words: "Upon the whole, therefore, I cannot say that I had any one instance that could induce me to believe that the ring was not of one uniform thickness; that is, equally thick at equal distances from the centre, and of an equal diameter throughout the whole of its construction. The idea of protuberant points upon the ring of Saturn, indeed, is of itself sufficient to render their existence inadmissible, when we consider the enormous size which such points ought to be of to render them visible at the distance we are from that planet.

With regard to the satellites, the Doctor informs us, that he was long convinced of the existence of a sixth; and had he been more at leisure at the time of his discovering those of the Georgium Sidus, he would probably have completed the discovery of the satellites of Saturn also. The sixth was first observed distinctly on the 28th of August 1789, and the seventh on the 17th of September the same year. These satellites, however, do not occupy the place which we should have previously supposed them, being, in fact, the innermost of the whole. The seventh is next the body of the planet itself, and is very small. It revolves at the distance of 27.″366 from the centre of Saturn, and seems to move exactly in the plane of the ring; but the Doctor observes, that it is exceedingly difficult to make a sufficient number of observations on it to determine the revolution exactly. He computes its periodical time at 22^h 40′ 46″. The sixth satellite is next to the seventh, and revolves at the distance of 35″.058 from the centre of its primary in 1^d 8^h 53′ 9″. Its light is considerably strong, but not equal to that of the first satellite of former astronomers, which lies immediately beyond it.

Saturn. The planet Saturn is now observed to have belts or fasciæ upon its disk as distinctly as Jupiter. Dr Herschel, on the 9th of April 1775, observed a northern belt on his body, inclined a little to the line of the ring. On the 1st of May 1776, there was another belt observed, inclined about 15° to the same line, but more to the south; and on the following nights came up to the place where the ring crosses the body of the planet. — On the 8th of April two belts were observed, and these continued with variations, and sometimes the appearance of a third belt, till the 8th of September, when the account of the observations was discontinued. The Doctor remarks, that he generally observed these belts in equatorial situations, though sometimes it was otherwise. Two conclusions, he says, may be drawn from the observations he made this year. "The first, which relates to the changes in the appearance of the belts, is, that Saturn has probably a very considerable atmosphere, in which these changes take place, just as the alterations in the belts of Jupiter have been shewn with great probability to be in his atmosphere. This has also been confirmed by other observations. Thus, in occultations of Saturn's satellites, I have found them to hang to the disk for a long while before they would vanish. And though we ought to make some allowance for the encroachment of light, whereby a satellite is seen to reach up to the disk sooner than it actually does, yet without a considerable refraction it could hardly be kept so long in view after the apparent contact. The time of hanging upon the disk in the seventh satellite has actually amounted to 20 minutes. Now, as its quick motion during that interval carries it through an arch of near six degrees, we find that this would denote a refraction of about two seconds, provided the encroaching of light had no share in producing the effect. By an observation of the sixth satellite, the refraction of Saturn's atmosphere amounts to nearly the same quantity; for this satellite remained about 14 or 15 minutes longer in view than it should have done; and as it moves about $2\frac{3}{4}$ degrees in that time, and its orbit is larger than that of the seventh, the difference is inconsiderable. The next inference we may draw from the appearance of the belts on Saturn is, that this planet turns upon an axis which is perpendicular to his ring. The arrangement of the belts, during the course of 14 years that I have observed them, has always followed the direction of the ring, which is what I have called *being equatorial*. Thus, as the ring opened, the belts began to advance towards the south, and to show an incurvature answering to the projection of an equatorial line, or to a parallel of the same. When the ring closed up, they returned towards the north, and are now, while the ring passes over the centre, exactly ranging with the shadow of it, on the body, generally one on each side, with a white belt close to it. When I say that the belts have always been equatorial, I pass over trifling exceptions, which certainly were owing to local causes. The step from equatorial belts to a rotation on an axis is so easy, and, in the case of Jupiter, so well ascertained, that I shall not hesitate to take the same consequence for granted here. But if there could remain a doubt, the observations of June 19th, 20th, and 21st, 1782, where the same spot upon one of the belts was seen in three different situations, would remove it completely."

Saturn.

Another evidence that Saturn, as well as the other planets, revolves upon its axis, is drawn from its flattened ſhape, like that of Mars, Jupiter, and Saturn. On the 31ſt of May 1781, the diſk ſeemed to deviate as much from a true circle as that of Jupiter, though by the interference of the ring this could not be ſo well determined as after an interval of eight years. On the 18th of Auguſt 1787, the difference between the equatorial and polar diameters was meaſured, the mean of three obſervations of the former being 22″.81, of the latter 20″.61. From theſe obſervations, it appears that the polar diameter of Saturn is to his equatorial diameter nearly as 10 to 11; and that his axis is perpendicular to the plane of the ring.

In a ſubſequent paper, the Doctor gives up his reaſoning againſt fixed lucid points in the ring, in conſequence of having frequently obſerved them in ſuch ſituations as could not by any means be accounted for by the ſatellites. He even attempts to invalidate his own arguments above-mentioned concerning the vaſt magnitude of the mountains neceſſary to make them viſible at this diſtance. "As obſervations (ſays he) carefully made ſhould always take the lead of theories, I ſhall not be concerned if ſuch lucid ſpots as I am now going to admit, ſhould ſeem to contradict what has been ſaid in my laſt paper concerning the idea of inequalities or protuberant points. We may, however, remark, that a lucid and apparently protuberant point may exiſt without any great inequality in the ring. A vivid light, for inſtance, will ſeem to project greatly beyond the limits of the body on which it is placed. If, therefore, the luminous places on the ring ſhould be ſuch as proceed from very bright reflecting regions, or, which is more probable, owe their exiſtence to the more fluctuating cauſes of inherent fires acting with great violence, we need not imagine the ring of Saturn to be very uneven or diſtorted, in order to preſent us with ſuch appearances. In this ſenſe of the word, then, we may ſtill oppoſe the idea of protuberant points, ſuch as would denote immenſe mountains of elevated ſurface.

"On comparing together ſeveral obſervations, a few trials ſhew that the brighteſt and beſt obſerved ſpot agrees to a revolution of $10^h\ 32'\ 15'.4$; and calculating its diſtance from the centre of Saturn, on a ſuppoſition of its being a ſatellite, we find it 17′.227, which brings it upon the ring. It is therefore certain, that unleſs we ſhould imagine the ring to be ſufficiently fluid to allow a ſatellite to revolve in it, or ſuppoſe a notch, groove, or diviſion in the ring, to ſuffer the ſatellite to paſs along, we ought to admit a revolution of the ring itſelf. The denſity of the ring, indeed, may be ſuppoſed to be very inconſiderable by thoſe who imagine its light to be rather the effect of ſome ſhining fluid, like an aurora borealis, than a reflection from ſome permanent ſubſtance; but its diſapparition, in general, and in my teleſcopes its faintneſs, when turned edgewiſe, are in no manner favourable to this idea.—When we add alſo, that this ring caſts a deep ſhadow upon the planet, is very ſharply defined both in its outer and inner edge, and in brightneſs exceeds the planet itſelf, it ſeems to be almoſt proved that its conſiſtence cannot be leſs than the body of Saturn, and that conſequently no degree of fluidity can be admitted ſufficient to permit a revolving body to keep in motion for any length of time. A groove might afford a paſſage, eſpecially as on a former occaſion we have already conſidered the idea of a divided ring. A circumſtance alſo which ſeems rather to favour this idea, is, that in ſome obſervations a bright ſpot has been ſeen to project equally on both ſides, as the ſatellites have been obſerved to do when they paſſed the ring. But, on the other hand, we ought to conſider, that the ſpot has often been obſerved very near the end of the arms of Saturn's ring, and that the calculated diſtance is conſequently a little too ſmall for ſuch appearances, and ought to be 19 or 20 ſeconds at leaſt. We ſhould alſo attend to the ſize of the ſpot, which ſeems to be variable: for it is hardly to be imagined that a ſatellite, brighter than the ſixth, and which could be ſeen with the moon nearly at full, ſhould ſo often eſcape our notice in its frequent revolutions, unleſs it varied much in its apparent brightneſs. To this we muſt add another argument drawn from the number of lucid ſpots, which will not agree with the motion of one ſatellite only; whereas, by admitting a revolution of the ring itſelf in $10^h\ 32'\ 15'.4$, and ſuppoſing all the ſpots to adhere to the ring, and to ſhare in the ſame periodical return, provided they laſt long enough to be ſeen many times, we ſhall be able to give an eaſy ſolution of all the remaining phenomena. See Phil. Tranſ. 1790, p. 427.

Saturn, in chemiſtry, an appellation given to lead.

Saturn, in heraldry, denotes the black colour in blazoning the arms of ſovereign princes.

Saturn, one of the principal of the Pagan deities, was the the ſon of Cœlus and Terra, and the father of Jupiter. He depoſed and caſtrated his father; and obliged his brother Titan to reſign his crown to him, on condition of his bringing up none of his male iſſue, that the ſucceſſion might at length devolve on him. For this purpoſe he devoured all the ſons he had by his wife Rhea or Cybele: but ſhe bringing forth at one time Jupiter and Juno, ſhe preſented the latter to her huſband, and ſent the boy to be nurſed on mount Ida; when Saturn being informed of her having a ſon, demanded the child; but in his ſtead his wife gave him a ſtone ſwaddled up like an infant, which he inſtantly ſwallowed. Titan finding that Saturn had violated the contract he had made with him, put himſelf at the head of his children, and made war on his brother, and having made him and Cybele priſoners, confined them in Tartarus: but Jupiter being in the mean time grown up, raiſed an army in Crete, went to his father's aſſiſtance, defeated Titan, and reſtored Saturn to the throne. Some time after, Saturn being told that Jupiter intended to dethrone him, endeavoured to prevent it; but the latter being informed of his intention, depoſed his father, and threw him into Tartarus. But Saturn eſcaping from thence fled into Italy, where he was kindly received by Janus king of the country, who aſſociated him to the government: whence Italy obtained the name of *Saturnia Tellus*; as alſo that of *Latium*, from *latio*, "to lie hid." There Saturn, by the wiſdom and mildneſs of his government, is ſaid to have produced the golden age.

Saturn is repreſented as an old man with four wings, armed with a ſcythe; ſometimes he is delineated under the figure of a ſerpent with its tail in its mouth. This is emblematic of the ſeaſons, which roll perpetually in the ſame circle. Sometimes alſo Saturn is painted with

urnalia || Satyavrata.

with a sand-glass in his hand. The Greeks say, that the story of his mutilating his father and destroying his children is an allegory, which signifies, that Time devours the past and present, and will also devour the future. The Romans, in honour of him, built a temple and celebrated a festival, which they called *Saturnalia*. During this festival no business or profession was allowed to be carried on except cookery; all distinctions of rank ceased; slaves could say what they pleased to their masters with impunity; they could even rally them with their faults before their faces.

SATURNALIA, in Roman antiquity, a festival observed about the middle of December, in honour of the god Saturn, whom Lucan introduces giving an account of the ceremonies observed on this occasion, thus. "During my whole reign, which lasts but for one week, no public business is done; there is nothing but drinking, singing, playing, creating imaginary kings, placing servants with their masters at table, &c. There shall be no disputes, reproaches, &c. but the rich and poor, masters and slaves, shall be equal," &c.

On this festival the Romans sacrificed bare-headed, contrary to their custom at other sacrifices.

SATURNINE, an appellation given to persons of a melancholy disposition, as being supposed under the influence of the planet Saturn.

SATURNITE, a name given by Mr Kirwan to a new metallic substance, supposed to be discovered by M. Monnet. It was met with in some lead founderies at a place named *Poulla ouen* in Brittany; being separated from the lead ore during its torrefaction. It resembles lead in colour, weight, solubility in acids and other properties, but differs from it in being more fusible, brittle, easily scorified and volatilized, and likewise not being miscible with lead in fusion. Messieurs Hassenfratz and Girond contended, that this saturnite was nothing but a compound of different substances, and accordingly gave an analysis of it as consisting of lead, copper, iron, silver, and sulphur; the proportions of which must naturally vary according to the quality of the ore put into the furnace. M. Monnet, however, insisted that the substance analysed by them was not that which he had discovered; but when he again visited the mines abovementioned, he could meet with none of the substance there which he found before.

SATYAVRATA, or MENU, in Indian mythology, is believed by the Hindoos to have reigned over the whole world in the earliest age of their chronology, and to have resided in the country of Dravira on the coast of the eastern Indian peninsula. His patronymic name was *Vaivaswata*, or *child of the sun*. In the *Bhagavat* we are informed, that the Lord of the Universe, intending to preserve him from the sea of destruction, caused by the depravity of the age, thus told him how he was to act. "In seven days from the present time, O thou tamer of enemies, the three worlds will be plunged in an ocean of death; but, in the midst of the destroying waves, a large vessel, sent by me for thy use, shall stand before thee. Then shalt thou take all medicinal herbs, all the variety of seeds; and, accompanied by seven saints, encircled by pairs of all brute animals, thou shalt enter the spacious ark and continue in it, secure from the flood on one immense ocean without light, except the radiance of thy holy companions. When the ship shall be agitated by an impetuous wind, thou shalt fasten it with a large sea-serpent on my horn; for I will be near thee: drawing the vessel, with you and thy attendants, I will remain on the ocean, O chief of men, until a night of Brahma shall be completely ended. Thou shalt then know my true greatness, rightly named the supreme Godhead; by my favour, all thy questions shall be answered, and thy mind abundantly instructed." All this is said to have been accomplished; and the story is evidently that of Noah disguised by Asiatic fiction and allegory. It proves, as Sir William Jones has rightly observed, an ancient Indian tradition of the universal deluge described by Moses; and enables us to trace the connection between the eastern and western traditions relating to that event. The same learned author has shown it to be in the highest degree probable, that the *Satyavrata* of India is the *Cronus* of Greece and the *Saturn* of Italy. See SATURN; and *Asiatic Researches*, Vol. I. p. 230, &c.

Satyr || Savage

SATYR, or SATIRE, in matters of literature, a discourse or poem, exposing the vices and follies of mankind. See POETRY, Part II. Sect. x.

The chief satirists among the ancients are, Horace, Juvenal, and Persius: those among the moderns, are, Regnier and Boileau, in French; Butler, Dryden, Rochester, Buckingham, Swift, Pope, Young, &c. among the English; and Cervantes among the Spaniards.

SATYRIASIS. See MEDICINE, n° 372.

SATYRIUM, in botany: A genus of the diandria order, belonging to the gynandria class of plants; and in the natural method ranking under the 42d order, *Verticillatæ*. The nectarium is scrotiform, or inflated double behind the flower.

SATYRS (in ancient mythology), a species of demi-gods who dwelt in the woods. They are represented as monsters, half-men, and half-goats; having horns on their heads, a hairy body, with the feet and tail of a goat. They are generally in the train that follows Bacchus. As the poets supposed that they were remarkable for piercing eyes and keen raillery, they have placed them in the same pictures with the Graces, Loves, and even with Venus herself.

SAVAGE (Richard), one of the most remarkable characters that is to be met with perhaps in all the records of biography, was the son of Anne countess of Macclesfied by the earl of Rivers, according to her own confession; and was born in 1698. This confession of adultery was made in order to procure a separation from her husband the earl of Macclesfield: yet, having obtained this desired end, no sooner was her spurious offspring brought into the world, than, without the dread of shame or poverty to excuse her, she discovered the resolution of disowning him; and, as long as he lived, treated him with the most unnatural cruelty. She delivered him over to a poor woman to educate as her own; prevented the earl of Rivers from leaving him a legacy of L.6000, by declaring him dead; and in effect deprived him of another legacy which his godmother Mrs Lloyd had left him, by concealing from him his birth, and thereby rendering it impossible for him to prosecute his claim. She endeavoured to send him secretly to the plantations; but this plan being either laid aside or frustrated, she placed him apprentice with a shoemaker. In this situation, however, he did not long continue: for his nurse dying, he went to take care of the effects of his supposed mother; and found in

Savage.

her boxes ſome letters which diſcovered to young Savage his birth, and the cauſe of its concealment.

From the moment of this diſcovery it was natural for him to become diſſatisfied with his ſituation as a ſhoemaker. He now conceived that he had a right to ſhare in the affluence of his real mother; and therefore he directly, and perhaps indiſcreetly, applied to her, and made uſe of every art to awaken her tenderneſs and attract her regard. But in vain did he ſolicit this unnatural parent; ſhe avoided him with the utmoſt precaution, and took meaſures to prevent his ever entering her houſe on any pretence whatever.

Savage was at this time ſo touched with the diſcovery of his birth, that he frequently made it his practice to walk before his mother's door in hopes of ſeeing her by accident; and often did he warmly ſolicit her to admit him to ſee her; but all to no purpoſe: he could neither ſoften her heart nor open her hand.

Mean time, while he was aſſiduouſly endeavouring to rouſe the affections of a mother in whom all natural affection was extinct, he was deſtitute of the means of ſupport, and reduced to the miſeries of want. We are not told by what means he got rid of his obligation to the ſhoemaker, or whether he ever was actually bound to him; but we now find him very differently employed in order to procure a ſubſiſtence. In ſhort, the youth had parts, and a ſtrong inclination towards literary purſuits, eſpecially poetry. He wrote a poem; and afterwards two plays, *Woman's a Riddle* and *Love in a Veil:* but the author was allowed no part of the profits from the firſt; and from the ſecond he received no other advantage than the acquaintance of Sir Richard Steel and Mr Wilks, by whom he was pitied, careſſed, and relieved. However, the kindneſs of his friends not affording him a conſtant ſupply, he wrote the tragedy of *Sir Thomas Overbury;* which not only procured him the eſteem of many perſons of wit, but brought him in 200l. The celebrated Aaron Hill, Eſq; was of great ſervice to him in correcting and fitting this piece for the ſtage and the preſs; and extended his patronage ſtill farther. But Savage was, like many other wits, a bad manager, and was ever in diſtreſs. As faſt as his friends raiſed him out of one difficulty, he ſunk into another; and, when he found himſelf greatly involved, he would ramble about like a vagabond, with ſcarce a ſhirt on his back. He was in one of theſe ſituations all the time wherein he wrote his tragedy above-mentioned; without a lodging, and often without a dinner: ſo that he uſed to ſcribble on ſcraps of paper picked up by accident, or begged in the ſhops, which he occaſionally ſtepped into, as thoughts occurred to him, craving the favour of pen and ink, as it were juſt to take a memorandum.

Mr Hill alſo earneſtly promoted a ſubſcription to a volume of *Miſcellanies*, by Savage; and likewiſe furniſhed part of the poems of which the volume was compoſed. To this miſcellany Savage wrote a preface, in which he gives an account of his mother's cruelty, in a very uncommon ſtrain of humour.

The profits of his Tragedy and his Miſcellanies together, had now, for a time, ſomewhat raiſed poor Savage both in circumſtances and credit; ſo that the world juſt began to behold him with a more favourable eye than formerly, when both his fame and life were endangered by a moſt unhappy event. A drunken frolic in which he one night engaged, ended in a fray, and Savage unfortunately killed a man, for which he was condemned to be hanged; his friends earneſtly ſolicited the mercy of the crown, while his mother as earneſtly exerted herſelf to prevent his receiving it. The counteſs of Hertford at length laid his whole caſe before queen Caroline, and Savage obtaineda pardon.

Savage had now loſt that tenderneſs for his mother, which the whole ſeries of her cruelty had not been able wholly to repreſs; and conſidering her as an implacable enemy, whom nothing but his blood could ſatisfy, threatened to haraſs her with lampoons, and to publiſh a copious narrative of her conduct, unleſs ſhe conſented to allow him a penſion. This expedient proved ſucceſsful; and the lord Tyrconnel, upon his promiſe of laying aſide his deſign of expoſing his mother's cruelty, took him into his family, treated him as an equal, and engaged to allow him a penſion of 200l. a-year. This was the golden part of Savage's life. He was courted by all who endeavoured to be thought men of genius, and careſſed by all who valued themſelves upon a refined taſte. In this gay period of his life he publiſhed the *Temple of Health and Mirth*, on the recovery of lady Tyrconnel from a languiſhing illneſs; and *The Wanderer*, a moral poem, which he dedicated to lord Tyrconnel, in ſtrains of the higheſt panegyric: but theſe praiſes he in a ſhort time found himſelf inclined to retract, being diſcarded by the man on whom they were beſtowed. Of this quarrel lord Tyrconnel and Mr Savage aſſigned very different reaſons. Our author's known character pleads too ſtrongly againſt him; for his conduct was ever ſuch as made all his friends, ſooner or later, grow weary of him, and even forced moſt of them to become his enemies.

Being thus once more turned adrift upon the world, Savage, whoſe paſſions were very ſtrong, and whoſe gratitude was very ſmall, became extremely diligent in expoſing the faults of lord Tyrconnel. He, moreover, now thought himſelf at liberty to take revenge upon his mother.—Accordingly he wrote *The Baſtard*, a poem, remarkable for the vivacity of its beginning (where he finely enumerates the imaginary advantages of baſe birth), and for the pathetic concluſion, wherein he recounts the real calamities which he ſuffered by the crime of his parents.—The reader will not be diſpleaſed with a tranſcript of ſome of the lines in the opening of the poem, as a ſpecimen of this writer's ſpirit and manner of verſification.

Bleſt be the baſtard's birth! thro' wondrous ways,
He ſhines eccentric like a comet's blaze.
No ſickly fruit of faint compliance he;
He! ſtamp'd in nature's mint with ecſtaſy!
He lives to build, not boaſt, a gen'rous race;
No tenth tranſmitter of a fooliſh face.
He, kindling from within, requires no flame,
He glories in a baſtard's glowing name.
—Nature's unbounded ſon, he ſtands alone,
His heart unbias'd, and his mind his own.
—O mother! yet no mother!—'tis to you
My thanks for ſuch diſtinguiſh'd claims are due.

This poem had an extraordinary ſale; and its appearance happening at the time when his mother was at Bath, many perſons there took frequent opportunities of repeating paſſages from the Baſtard in her hearing.

Savage. ing. This was perhaps the first time that ever she discovered a sense of shame, and on this occasion the power of wit was very conspicuous: the wretch who had, without scruple, proclaimed herself an adulteress, and who had first endeavoured to starve her son, then to transport him, and afterwards to hang him, was not able to bear the representation of her own conduct; but fled from reproach, though she felt no pain from guilt; and left Bath with the utmost haste, to shelter herself among the crowds of London (A).

Some time after this, Savage formed the resolution of applying to the queen; who having once given him life, he hoped she might farther extend her goodness to him by enabling him to support it.—With this view, he published a poem on her birth-day, which he entitled *The Volunteer-Laureat*; for which she was pleased to send him 50 l. with an intimation that he might annually expect the same bounty. But this annual allowance was nothing to a man of his strange and singular extravagance. His usual custom was, as soon as he had received his pension, to disappear with it, and secrete himself from his most intimate friends, till every shilling of the 50 l. was spent; which done, he again appeared, penniless as before: But he would never inform any person where he had been, nor in what manner his money had been dissipated.—From the reports, however, of some who found means to penetrate his haunts, it would seem that he expended both his time and his cash in the most sordid and despicable sensuality; particularly in eating and drinking, in which he would indulge in the most unsocial manner, sitting whole days and nights by himself, in obscure houses of entertainment, over his bottle and trencher, immersed in filth and sloth, with scarce decent apparel; generally wrapped up in a horseman's great coat; and, on the whole, with his very homely countenance, and altogether, exhibiting an object the most disgusting to the sight, if not to some other of the senses.

His wit and parts, however, still raised him new friends as fast as his misbehaviour lost him his old ones. Yet such was his conduct, that occasional relief only furnished the means of occasional excess; and he defeated all attempts made by his friends to fix him in a decent way. He was even reduced so low as to be destitute of a lodging; insomuch that he often passed his nights in those mean houses that are set open for casual wanderers; sometimes in cellars amidst the riot and filth of the most profligate of the rabble; and not seldom would he walk the streets till he was weary, and then lie down in summer on a bulk, or in winter with his associates among the ashes of a glass-house.

Yet, amidst all his penury and wretchedness, had this man so much pride, and so high an opinion of his own merit, that he ever kept up his spirits, and was always ready to repress, with scorn and contempt, the least appearance of any slight or indignity towards himself, in the behaviour of his acquaintance; among whom he looked upon none as his superior. He would be treated as an equal, even by persons of the highest rank. We have an instance of this preposterous and inconsistent pride, in his refusing to wait upon a gentleman who was desirous of relieving him when at the lowest ebb of distress, only because the message signified the gentleman's desire to see him at nine in the morning. Savage could not bear that any one should presume to prescribe the hour of his attendance, and therefore he absolutely rejected the proffered kindness. This life, unhappy as it may be already imagined, was yet rendered more unhappy, by the death of the queen, in 1738; which stroke deprived him of all hopes from the court. His pension was discontinued, and the insolent manner in which he demanded of Sir Robert Walpole

(A) Mr Boswell, in his life of Dr Johnson, has called in question the story of Savage's birth, and grounded his suspicion on two mistakes, or, as he calls them, falsehoods, which he thinks he has discovered in his friend's memoirs of that extraordinary man. Johnson has said, that the earl of Rivers was Savage's godfather, and gave him his own name; which, by his direction, was inserted in the register of the parish of St Andrew's, Holborn. Part of this, it seems, is not true; for Mr Boswell carefully inspected that register, but no such entry is to be found. But does this omission amount to a proof, that the person who called himself *Richard Savage* was an impostor, and not the son of the earl of Rivers and the countess of Macclesfield? Mr Boswell thinks it does; and, in behalf of his opinion, appeals to the maxim *falsum in uno, falsum in omnibus*. The solidity of this maxim may be allowed by others; but it was not without surprise that, on such an occasion, we found it adopted by the biographer of Johnson. To all who have compared his view of a celebrated cause, with Stuart's letters on the same subject addressed to Lord Mansfield, it must be apparent, that, at one period of his life, he would not have deemed a thousand such mistakes sufficient to invalidate a narrative otherwise so well authenticated as that which relates the birth of Savage. The truth is, that the omission of the name in the register of St Andrew's may be easily accounted for, without bringing against the wretched Savage an accusation of imposture, which neither his mother nor her friends dared to urge when provoked to it by every possible motive that can influence human conduct. The earl of Rivers would undoubtedly give the direction about registering the child's name to the same person whom he entrusted with the care of his education; but that person, it is well known, was the countess of Macclesfield, who, as she had resolved from his birth to disown her son, would take care that the direction should not be obeyed.

That which, in Johnson's life of Savage, Mr Boswell calls a second falsehood, seems not to amount even to a mistake. It is there stated, that "Lady Macclesfield having lived for some time upon very uneasy terms with her husband, thought a public confession of adultery the most obvious and expeditious method of obtaining her liberty." This Mr Boswell thinks cannot be true; because, having perused the journals of both houses of parliament at the period of her divorce, he there found it authentically ascertained, that so far from voluntarily submitting to the ignominious charge of adultery, she made a strenuous defence by her counsel. But what is this to the purpose? Johnson has nowhere said, that she confessed her adultery at the

Walpole to have it restored, for ever cut off this considerable supply; which possibly had been only delayed, and might have been recovered by proper application.

His distress now became so great, and so notorious, that a scheme was at length concerted for procuring him a permanent relief. It was proposed that he should retire into Wales, with an allowance of 50 l. *per annum*, on which he was to live privately, in a cheap place, for ever quitting his town-haunts, and resigning all farther pretensions to fame. This offer he seemed gladly to accept; but his intentions were only to deceive his friends, by retiring for a while, to write another tragedy, and then to return with it to London in order to bring it upon the stage.

In 1739, he set out for Swansey, in the Bristol stage-coach, and was furnished with 15 guineas to bear the expence of his journey. But, on the 14th day after his departure, his friends and benefactors, the principal of whom was no other than the great Mr Pope, who expected to hear of his arrival in Wales, were surprised with a letter from Savage, informing them that he was yet upon the road, and could not proceed for want of money. There was no other remedy than a remittance; which was sent him, and by the help of which he was enabled to reach Bristol, from whence he was to proceed to Swansey by water. At Bristol, however, he found an embargo laid upon the shipping; so that he could not immediately obtain a passage. Here, therefore, being obliged to stay for some time, he, with his usual facility, so ingratiated himself with the principal inhabitants, that he was frequently invited to their houses, distinguished at their public entertainments, and treated with a regard that highly gratified his vanity, and therefore easily engaged his affections. At length, with great reluctance, he proceeded to Swansey; where he lived about a year, very much dissatisfied with the diminution of his salary; for he had, in his letters, treated his contributors so insolently, that most of them withdrew their subscriptions. Here he finished his tragedy, and resolved to return with it to London: which was strenuously opposed by his great and constant friend Mr Pope; who proposed that Savage should put this play into the hands of Mr Thomson and Mr Mallet, in order that they might fit it for the stage, that his friends should receive the profits it might bring in, and that the author should receive the produce by way of annuity. This kind and prudent scheme was rejected by Savage with the utmost contempt.—He declared he would not submit his works to any one's correction; and that he would no longer be kept in leading-strings. Accordingly he soon returned to Bristol, in his way to London; but at Bristol, meeting with a repetition of the same kind treatment he had before found there, he was tempted to make a second stay in that opulent city for some time. Here he was again not only caressed and treated, but the sum of 30 l. was raised for him, with which it had been happy if he had immediately departed for London: But he never considered that a frequent repetition of such kindness was not to be expected, and that it was possible to tire out the generosity of his Bristol friends, as he had before tired his friends everywhere else. In short, he remained here till his company was no longer welcome. His visits in every family were too often repeated; his wit had lost its novelty, and his irregular behaviour grew troublesome. Necessity came upon him before he was aware; his money was spent, his clothes were worn out, his appearance was shabby, and his presence was disgustful at every table. He now began to find every man from home at whose house he called; and he found it difficult to obtain a dinner. Thus reduced, it would have been prudent in him to have withdrawn from the place; but prudence and Savage were never acquainted.

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the bar of either house of parliament, but only that her confession was *public*; and as he has taught us in his Dictionary, that whatever is *notorious* or *generally* known is *public*; public, in his sense of the word, that confession certainly was, if made to different individuals, in such a manner as showed that she was not anxious to conceal it from her husband, or to prevent its notoriety. She might, however, have very cogent reasons for denying her guilt before parliament, and for making a strenuous defence by her counsel; as indeed, had she acted otherwise, it is very little probable that her great fortune would have been restored to her, or that she could have obtained a second husband.

But Mr Boswell is of opinion, that the person who assumed the name of Richard Savage was the son of the shoemaker under whose care Lady Macclesfield's child was placed; because "his not being able to obtain payment of Mrs Lloyd's legacy must be imputed to his consciousness that he was not the real person to whom that legacy was left." He must have a willing mind who can admit this argument as a proof of imposture. Mrs Lloyd died when Savage was in his 10th year, when he certainly did not know or suspect that he was the person for whom the legacy was intended, when he had none to prosecute his claim, to shelter him from oppression, or to call in law to the assistance of justice. In such circumstances he could not have obtained payment of the money, unless the executors of the will had been inspired from heaven with the knowledge of the person to whom it was due.

To these and a thousand such idle cavils it is a sufficient answer, that Savage was acknowledged and patronized as Lady Macclesfield's son by Lord Tyrconnel, who was that lady's nephew; by Sir Richard Steel the intimate friend of colonel Brett, who was that lady's second husband; by the Queen, who, upon the authority of that lady and her creatures, once thought Savage capable of entering his *mother's* house in the night with an intent to murder her; and in effect by *the lady herself*, who at one time was prevailed upon to give him 50 l. and who fled before the Satire of the *Bastard*, without offering, either by herself or her friends, to deny that the author of that poem was the person whom he called himself, or to insinuate so much as that he might *possibly* be the son of a shoemaker. To Mr Boswell all this seems *strange*: to others, who look not with so keen an eye for supposititious births, we think it must appear *convincing*.

acquainted. He ſtaid, in the midſt of poverty, hunger, and contempt, till the miſtreſs of a coffee-houſe, to whom he owed about eight pounds, arreſted him for the debt. He remained for ſome time, at a great expence, in the houſe of the ſheriff's officer, in hopes of procuring bail; which expence he was enabled to defray, by a preſent of five guineas from Mr Naſh at Bath. No bail, however, was to be found; ſo that poor Savage was at laſt lodged in Newgate, a priſon ſo named in Briſtol.

But it was the fortune of this extraordinary mortal always to find more friends than he deſerved. The keeper of the priſon took compaſſion on him, and greatly ſoftened the rigours of his confinement by every kind of indulgence; he ſupported him at his own table, gave him a commodious room to himſelf, allowed him to ſtand at the door of the gaol, and even frequently took him into the fields for the benefit of the air and exerciſe: ſo that, in reality, Savage endured fewer hardſhips in this place than he had uſually ſuffered during the greateſt part of his life.

While he remained in this not intolerable priſon, his ingratitude again broke out, in a bitter ſatire on the city of Briſtol; to which he certainly owed great obligations, notwithſtanding the circumſtances of his arreſt; which was but the act of an individual, and that attended with no circumſtances of injuſtice or cruelty. This ſatire he entitled *London and Briſtol delineated*; and in it he abuſed the inhabitants of the latter, with ſuch a ſpirit of reſentment, that the reader would imagine he had never received any other than the moſt injurious treatment in that city.

When Savage had remained about ſix months in this hoſpitable priſon, he received a letter from Mr Pope, (who ſtill continued to allow him 20 l. a-year) containing a charge of very atrocious ingratitude. What were the particulars of this charge we are not informed; but, from the notorious character of the man, there is reaſon to fear that Savage was but too juſtly accuſed. He, however, ſolemnly proteſted his innocence; but he was very unuſually affected on this occaſion. In a few days after, he was ſeized with a diſorder, which at firſt was not ſuſpected to be dangerous: but growing daily more languid and dejected, at laſt a fever ſeized him; and he expired on the 1ſt of Auguſt 1743, in the 46th year of his age.

Thus lived, and thus died, Richard Savage, Eſq; leaving behind him a character ſtrangely chequered with vices and good qualities. Of the former we have ſeen a variety of inſtances in this abſtract of his life; of the latter, his peculiar ſituation in the world gave him but few opportunities of making any conſiderable diſplay. He was, however, undoubtedly a man of excellent parts; and had he received the full benefits of a liberal education, and had his natural talents been cultivated to the beſt advantage, he might have made a reſpectable figure in life. He was happy in a quick diſcernment, a retentive memory, and a lively flow of wit, which made his company much coveted; nor was his judgment both of writings and of men inferior to his wit: but he was too much a ſlave to his paſſions, and his paſſions were too eaſily excited. He was warm in his friendſhips, but implacable in his enmity; and his greateſt fault, which is indeed the greateſt of all faults, was ingratitude. He ſeemed to think every thing due to his merit, and that he was little obliged to any one for thoſe favours which he thought it their duty to confer on him: it is therefore the leſs to be wondered at, that he never rightly eſtimated the kindneſs of his many friends and benefactors, or preſerved a grateful and due ſenſe of their generoſity towards him.

The works of this orginal writer, after having long lain diſperſed in magazines and fugitive publications, have been lately collected and publiſhed in an elegant edition, in 2 vols 8vo; to which are prefixed, the admirable Memoirs of Savage, written by Dr Samuel Johnſon.

Savage is a word ſo well underſtood as ſcarcely to require explanation. When applied to inferior animals, it denotes that they are wild, untamed, and cruel; when applied to man, it is of much the ſame import with *barbarian*, and means a perſon who is untaught and uncivilized, or who is in the rude ſtate of uncultivated nature. That ſuch men exiſt at preſent, and have exiſted in moſt ages of the world, is undeniable; but a queſtion naturally occurs reſpecting the origin of this ſavage ſtate, the determination of which is of conſiderable importance in developing the nature of man, and aſcertaining the qualities and powers of the human mind. Upon this ſubject, as upon moſt others, opinions are very various, and the ſyſtems built upon them are conſequently very contradictory. A large ſect of ancient philoſophers maintained that man ſprung at firſt from the earth like his brother vegetables; that he was without ideas and without ſpeech; and that many ages elapſed before the race acquired the uſe of language, or attained to greater knowledge than the beaſts of the foreſt. Other ſects again, with the vulgar, and almoſt all the poets, maintained that the firſt mortals were wiſer and happier, and more powerful, than any of their offſpring; that mankind, inſtead of being originally ſavages, and riſing to the ſtate of civilization by their own gradual and progreſſive exertions, were created in a high degree of perfection; that, however, they degenerated from that ſtate, and that all nature degenerated with them. Hence the various ages of the world have almoſt everywhere been compared to gold, ſilver, braſs, and iron, the golden having been always ſuppoſed to be the firſt age.

Since the revival of letters in Europe, and eſpecially during the preſent century, the ſame queſtion has been much agitated both in France and England, and by far the greater part of the moſt faſhionable names in modern ſcience have declared for the original ſavagiſm of men. Such of the ancients as held that opinion were countenanced by the atheiſtic coſmogony of the Phenicians, and by the early hiſtory of their own nations; the moderns build their ſyſtem upon what they ſuppoſe to be the conſtitution of the human mind, and upon the late improvements in arts and ſciences. As the queſtion muſt finally be decided by hiſtorical evidence, before we make our appeal to facts, we ſhall conſider the force of the modern reaſonings from the ſuppoſed innate powers of the human mind; for that reaſoning is totally different from the other, and to blend them together would only prevent the reader from having an adequate conception of either.

Upon the ſuppoſition that all mankind were originally ſavages, deſtitute of the uſe of ſpeech, and, in the ſtricteſt ſenſe of the words, *mutum et turpe pecus*, the great

Savage. great difficulty is to conceive how they could emerge from that ſtate, and become at laſt enlightened and civilized. The modern advocates for the univerſality of the ſavage ſtate remove this difficulty by a number of inſtincts or internal ſenſes, with which they ſuppoſe the human mind endowed, and by which the ſavage is, without reflection, not only enabled to diſtinguiſh between right and wrong, and prompted to do every thing neceſſary to the preſervation of his exiſtence, and the continuance of the ſpecies, but alſo led to the diſcovery of what will contribute, in the firſt inſtance, to the eaſe and accommodations of life. Theſe inſtincts, they think, brought mankind together when the reaſoning faculty, which had hitherto been dormant, being now rouſed by the colliſions of ſociety, made its obſervations upon the conſequences of their different actions, taught them to avoid ſuch as experience ſhowed to be pernicious, and to improve upon thoſe which they found beneficial; and thus was the progreſs of civilization begun. But this theory is oppoſed by objections which we know not how to obviate. The bundle of inſtincts with which modern idleneſs, under the denomination of philoſophy, has ſo amply furniſhed the human mind, is a mere chimera. (See Instinct.) But granting its reality, it is by no means ſufficient to produce the conſequences which are derived from it. That it is not the parent of language, we have ſhown at large in another place (ſee Language, n° 1—7.); and we have the confeſſion of ſome of the ableſt advocates for the original ſavagiſm of man, that large ſocieties muſt have been formed before language could have been invented. How ſocieties, at leaſt large ſocieties, could be formed and kept together without language, we have not indeed been told; but we are aſſured by every hiſtorian and every traveller of credit, that in ſuch ſocieties only have mankind been found civilized. Among known ſavages the ſocial ſtorge is very much confined; and therefore, had it been in the firſt race of men of as enlarged a nature, and as ſafe a guide, as the inſtinctive philoſophers contend that it was, it is plain that thoſe men could not have been ſavages. Such an appetite for ſociety, and ſuch a director of conduct, inſtead of enabling mankind to have emerged from ſavagiſm, would have effectually prevented them from ever becoming ſavage; it would have knit them together from the very firſt, and furniſhed opportunities for the progenitors of the human race to have begun the proceſs of civilization from the moment that they dropt from the hands of their Creator. Indeed, were the modern theories of internal ſenſes and ſocial affections well founded, and were theſe ſenſes and affections ſufficient to have impelled the firſt men into ſociety, it is not eaſy to be conceived how there could be at this day a ſavage tribe on the face of the earth. Natural cauſes, operating in the ſame direction and with the ſame force, muſt in every age produce the ſame effects; and if the ſocial affections of the firſt mortals impelled them to ſociety, and their reaſoning faculties immediately commenced the proceſs of civilization, ſurely the ſame affections and the ſame faculties would in a greater or leſs degree have had the ſame effect in every age and on every tribe of their numerous offſpring; and we ſhould everywhere obſerve mankind advancing in civilization, inſtead of ſtanding ſtill as they often do, and ſometimes retreating by a retrograde motion. This, however, is far from being the caſe. Hordes of ſavages exiſt in almoſt every quarter of the globe; and the Chineſe, who have undoubtedly been in a ſtate of civilization for at leaſt 2000 years, have during the whole of that long period been abſolutely ſtationary, if they have not loſt ſome of their ancient arts. (See Porcelain). The origin of civilization, therefore, is not to be looked for in human inſtincts or human propenſities, carrying men forward by a natural progreſs; for the ſuppoſition of ſuch propenſities is contrary to fact; and by fact and hiſtorical evidence, in conjunction with what we know of the nature of man, muſt this great queſtion be at laſt decided.

In the article Religion, n° 7. it has been ſhewn that the firſt men, if left to themſelves without any inſtruction, inſtead of living the life of ſavages, and in proceſs of time advancing towards civilization, muſt have periſhed before they acquired even the uſe of ſome of their ſenſes. In the ſame article it has been ſhown (n° 14—17.), that Moſes, as he is undoubtedly the oldeſt hiſtorian extant, wrote likewiſe by immediate inſpiration; and that therefore, as he repreſents our firſt parents and their immediate deſcendants as in a ſtate far removed from that of ſavages, it is vain to attempt to deduce the originality of ſuch a ſtate from hypothetical theories of human nature. We have, indeed, heard it obſerved by ſome of the advocates for the antiquity and univerſality of the ſavage ſtate, that to the appeal to revelation they have no objection, provided we take the Moſaic account as it ſtands, and draw not from it concluſions which it will not ſupport.

They contend, at the ſame time, that there is no argument fairly deducible from the book of Geneſis which militates againſt their poſition. Now we beg leave to remark, that beſides the reaſoning which we have already uſed in the article juſt referred to, we have as much poſitive evidence againſt their poſition as the nature of the Moſaic hiſtory could be ſuppoſed to afford.

We are there told that God created man after his own image; that he gave him dominion over every thing in the ſea, in the air, and over all the earth; that he appointed for his food various kinds of vegetables; that he ordained the Sabbath to be obſerved by him, in commemoration of the works of creation; that he prepared for him a garden to till and to dreſs; and that, as a teſt of his religion and ſubmiſſion to his Creator, he forbade him, under ſevere penalties, to eat of a certain tree in that garden. We are then told that God brought to him every animal which had been created; and we find that Adam was ſo well acquainted with their ſeveral natures as to give them names. When too an helpmate was provided for him, he immediately acknowledged her as bone of his bone, fleſh of his fleſh, and called her *woman*, becauſe ſhe was taken out of man.

How theſe facts can be reconciled to a ſtate of ignorant ſavagiſm is to us abſolutely inconceivable; and it is indeed ſtrange, that men who profeſs Chriſtianity ſhould appeal to reaſon, and ſtick by its deciſion on a queſtion which revelation has thus plainly decided againſt them. But it is agreeable to their theory to believe that man roſe by ſlow ſteps to the full uſe of his reaſoning powers. To us, on the other hand, it appears equally plauſible to ſuppoſe that our firſt parents were created, not in full maturity, but mere infants, and that they went through the tedious proceſs of childhood and youth,

youth, &c. as to suppose that their minds were created weak, uninformed, and uncivilized, as are those of savages.

But if it be granted that Adam had a tolerable share of knowledge, and some civilization, nothing can be more natural than to suppose that he would teach his descendants what he knew himself; and if the Scriptures are to be believed, we are certain that some of them possessed more than savage knowledge, and better than savage manners. But instead of going on to further perfection, as the theory of modern philosophers would lead us to suppose, we find that mankind degenerated in a most astonishing degree; the causes of which we have already in part developed in the article POLYTHEISM, n° 4, &c.

This early degeneracy of the human race, or their sudden progress towards ignorance and savagism, appears to lead to an important consequence. If men so very soon after their creation, possessing, as we have seen they did, a considerable share of knowledge and of civilization, instead of improving in either, degenerated in both respects, it would not appear that human nature has that strong propensity to refinement which many philosophers imagine; or that had all men been originally savage, they would have civilized themselves by their own exertions.

Of the ages before the flood we have no certain account anywhere but in Scripture; where, though we find mankind represented as very wicked, we have no reason to suppose them to have been absolute savages. On the contrary, we have much reason, from the short account of Moses, to conclude that they were far advanced in the arts of civil life. Cain, we are told, built a city; and two of his early descendants invented the harp and organ, and were artificers in brass and iron. Cities are not built, nor musical instruments invented, by savages, but by men highly cultivated: and surely we have no reason to suppose that the righteous posterity of Seth were behind the apostate descendants of Cain in any branch of knowledge that was really useful. That Noah and his family were far removed from savagism, no one will controvert who believes that with them was made a new covenant of religion; and it was unquestionably their duty, as it must otherwise have been their wish, to communicate what knowledge they possessed to their posterity. Thus far then every consistent Christian, we think, must determine against original and universal savagism.

In the preliminary discourse to Sketches of the History of Man, Lord Kames would infer, from some facts which he states, that many pairs of the human race were at first created, of very different forms and natures, but all depending entirely on their own natural talents. But to this statement he rightly observes, that the Mosaic account of the Creation opposes insuperable objections. "Whence then (says his Lordship) the degeneracy of all men into the savage state? To account for that dismal catastrophe, mankind must have suffered some dreadful convulsion." Now, if we mistake not, this is taking for granted the very thing to be proved. We deny that at any period since the creation of the world, *all* men were sunk into the state of savages; and that they were, no proof has yet been brought, nor do we know of any that can be brought, unless our fashionable philosophers choose to prop their theories by the buttress of Sanchoniatho's Phenician cosmogony. (See SANCHONIATHO.) His Lordship, however, goes on to say, or rather to *suppose*, that the confusion at Babel, &c. was this dreadful convulsion: For, says he, "by confounding the language of men, and scattering them abroad upon the face of all the earth, they were rendered savages." Here again we have a positive assertion, without the least shadow of proof; for it does not at all appear that the confusion of language, and the scattering abroad of the people, was a circumstance such as could induce universal savagism. There is no reason to think that all the men then alive were engaged in building the tower of Babel; nor does it appear from the Hebrew original that the language of those who were engaged in it was so much changed as the reader is apt to infer from our English version. (See PHILOLOGY, n° 8—16.) That the builders were *scattered*, is indeed certain; and if any of them were driven, in very small tribes, to a great distance from their brethren, they would in process of time inevitably become savages. (See POLYTHEISM, n° 4—6, and LANGUAGE, n° 7.); but it is evident, from the Scripture account of the peopling of the earth, that the descendants of Shem and Japheth were not scattered over the face of all the earth, and that therefore they could not be rendered savage by the catastrophe at Babel. In the chapter which relates that wonderful event, the generations of Shem are given in order down to Abram; but there is no indication that they had suffered with the builders of the tower, or that any of them had degenerated into the state of savages. On the contrary, they appear to have possessed a considerable degree of knowledge; and if any credit be due to the tradition which represents the father of Abraham as a statuary, and himself as skilled in the science of astronomy, they must have been far advanced in the arts of refinement. Even such of the posterity of Ham as either emigrated or were driven from the plain of Shinar in large bodies, so far from sinking into savagism, retained all the accomplishments of their antediluvian ancestors, and became afterwards the instructors of the Greeks and Romans. This is evident from the history of the Egyptians and other eastern nations, who in the days of Abraham were powerful and highly civilized. And that for many ages they did not degenerate into barbarism, is apparent from its having been thought to exalt the character of Moses, that he was learned in all the wisdom of the Egyptians, and from the wisdom of Solomon having been said to excel all the wisdom of the east country and of Egypt.

Thus decided are the Scriptures of the Old Testament against the universal prevalence of savagism in that period of the world; nor are the most authentic Pagan writers of antiquity of a different opinion. Mochus the Phenician *, Democritus, and Epicurus, appear to be the first champions of the savage state, and they are followed by a numerous body of poets and rhapsodists, among the Greeks and Romans, who were uniformly devoted to fable and fiction. The account which they have given of the origin of man, the reader will find in another place (see THEOLOGY, Part i. sect. 1.): But we hardly think that he will employ it in support of the fashionable doctrine of original savagism. Against the wild reveries of this school are pitted all the leaders of the other sects, Greeks and barbarians; the philo-

* Lib. xvii. cap. i.

Savage. ſophers of both Academies, the ſages of the Italian and Alexandrian ſchools; the magi of Perſia; the Bramins of India, and the Druids of Gaul, &c. The teſtimony of the early hiſtorians among all the ancient nations, indeed, who are avowedly fabuliſts, is very little to be depended on, and has been called in queſtion by the moſt judicious writers of Pagan antiquity. (See *Plutarch Vita Theſ. ſub init. Thucyd*, l. 1. cap. 1. *Strabo*, l. 11. p. 507. *Livy Pref.* and *Varro ap. Auguſt de Civ. Dei.*) The more populous and extenſive kingdoms and ſocieties were civilized at a period prior to the records of profane hiſtory: the preſumption, therefore, without taking revelation into the account, certainly is, that they were civilized from the beginning. This is rendered further probable from other circumſtances. To account for their ſyſtem, the advocates of ſavagiſm are obliged, as we have ſeen, to have recourſe to numerous ſuppoſitions. They imagine, that ſince the creation dreadful convulſions have happened, which have ſpread ruin and devaſtation over the earth, which have deſtroyed learning and the arts, and brought on ſavagiſm by one ſudden blow. But this is reaſoning at random, and without a veſtige of probability: for the only convulſion that can be mentioned is that at Babel, which we have already ſhewn to be inadequate.

Further, it does not appear that any people who were once civilized, and in proceſs of time had degenerated into the ſavage or barbarous ſtate, have ever recovered their priſtine condition without foreign aid. From whence we conclude, that man, once a ſavage, would never have raiſed himſelf from that hopeleſs ſtate. This appears evident from the hiſtory of the world; for that it requires ſtrong incitements to keep man in a very high ſtate of knowledge and civilization, is evident from what we know of the numerous nations which were famed in antiquity, but which are now degenerated in an aſtoniſhing degree. That man cannot, or, which is the ſame thing, has not riſen from barbariſm to civilization and ſcience by his own efforts and natural talents, appears further from the following facts. The rudiments of all the learning, religion, laws, arts, and ſciences, and other improvements that have enlightened Europe, a great part of Aſia, and the northern coaſt of Africa, were ſo many rays diverging from two points, on the banks of the Euphrates and the Nile. In proportion as nations receded from theſe two ſources of humanity and civilization, in the ſame proportion were they more and more immerſed in ignorance and barbariſm. The Greeks had made no progreſs towards civilization when the Titans firſt, and afterwards colonies from Egypt and Phenicia, taught them the very elements of ſcience and urbanity*. The aborigines of Italy were in the ſame ſtate prior to the arrival of the Pelaſgi, and the colonies from Arcadia and other parts of Greece. Spain was indebted for the firſt ſeeds of improvement to the commercial ſpirit of the Phenicians. The Gauls, the Britons, and the Germans, derived from the Romans all that in the early periods of their hiſtory they knew of ſcience, or the arts of civil life, and ſo on of other nations in antiquity. The ſame appears to be the caſe in modern times. The countries which have been diſcovered by the reſtleſs and inquiſitive ſpirit of Europeans have been generally found in the loweſt ſtate of ſavagiſm; from which, if they have emerged at all, it has been exactly in proportion to their connection with the inhabitants of Europe. Even weſtern Europe itſelf, when ſunk in ignorance, during the reign of monkery, did not recover by the efforts of its own inhabitants. Had not the Greeks, who in the 15th century took refuge in Italy from the cruelty of the Turks, brought with them their ancient books, and taught the Italians to read them, we who are diſputing about the origin of the ſavage ſtate, and the innate powers of the human mind, had at this day been groſs and ignorant ſavages ourſelves, incapable of reaſoning with accuracy upon any ſubject. That we have now advanced far before our maſters is readily admitted; for the human mind, when put on the right track, and ſpurred on by emulation and other incitements, is capable of making great improvements: but between improving ſcience, and emerging from ſavagiſm, every one perceives there is an immenſe difference.

* See Titan.

Lord Kames obſerves, that the people who inhabit a grateful ſoil, where the neceſſaries of life are eaſily procured, are the firſt who invent uſeful and ingenious arts, and the firſt who figure in the exerciſes of the mind. But the Egyptians and Chaldeans, who are thought to ſupport this remark, appear from what we have ſeen to have derived their knowledge from their antediluvian progenitors, and not from any advantages of ſituation or ſtrength of genius. Beſides, the inhabitants of a great part of Africa, of North and South America, and of many of the iſlands lately diſcovered, live in regions equally fertile, and equally productive of the neceſſaries of life, with the regions of Chaldee and Egypt; yet theſe people have been ſavages from time immemorial, and continue ſtill in the ſame ſtate. The Athenians, on the other hand, inhabited the moſt barren and ungrateful region of Greece, while their perfection in the arts and ſciences has never been equalled. The Norwegian colony which ſettled in Iceland about the beginning of the 8th century, inhabited a moſt bleak and barren ſoil, and yet the fine arts were eagerly cultivated in that dreary region when the reſt of Europe was ſunk in ignorance and barbariſm. Again, there are many parts of Africa, and of North and South America, where the ſoil is neither ſo luxuriant as to beget indolence, nor ſo barren and ungrateful as to depreſs the ſpirits by labour and poverty; where, notwithſtanding, the inhabitants ſtill continue in an uncultured ſtate. From all which, and from numerous other inſtances which our limits permit us not to bring forward, we infer that ſome external influence is neceſſary to impel towards civilization ſavages; and that in the hiſtory of the world, or the nature of the thing, we find no inſtance of any people emerging from barbariſm by the progreſſive efforts of their own genius. On the contrary, as we find in ſocieties highly cultivated and luxurious a ſtrong tendency to degenerate, ſo in ſavages we not only find no mark of tendency to improvement, but rather a rooted averſion to it. Among them, indeed, the ſocial appetite never reaches beyond their own horde. It is, therefore, too weak and too confined to diſpoſe them to unite in large communities; and of courſe, had all mankind been once in the ſavage ſtate, they never could have arrived at any conſiderable degree of civilization.

Inſtead of truſting to any ſuch natural progreſs, as is contended for, the Providence of Heaven, in pity to the human race, appears at different times, and in different

Savage. ferent countries, to have raised up some persons endowed with superior talents, or, in the language of poetry, some heroes, demi-gods, or god-like men, who having themselves acquired some knowledge in nations already civilized, by useful inventions, legislation, religious institutions, and moral arrangements, sowed the first seeds of civilization among the hordes of wandering disunited barbarians. Thus we find the Chinese look up to their Fohee, the Indians to Brahma, the Persians to Zoroaster, the Chaldeans to Oanes, the Egyptians to Thoth, the Phenicians to Melicerta, the Scandinavians to Odin, the Italians to Janus, Saturn, and Picus, and the Peruvians to Manco. In later times, and almost within our own view, we find the barbarous nations of Russia reduced to some order and civilization by the astonishing powers and exertions of Peter the Great. The endeavours of succeeding monarchs, and especially of the present empress, have powerfully contributed to the improvement of this mighty empire. In many parts of it, however, we still find the inhabitants in a state very little superior to savagism; and through the most of it, the lower, and perhaps the middling orders, appear to retain an almost invincible aversion to all further progress*. A fact which, when added to numerous others of a similar nature which occur in the history of the world, seems to prove indisputably that there is no such natural propensity to improvement in the human mind as we are taught by some authors to believe. The origin of savagism, if we allow mankind to have been at first civilized, is easily accounted for by natural means: The origin of civilization, if at any period the whole race were savages, cannot, we think, be accounted for otherwise than by a miracle, or repeated miracles.

* See Russia.

To many persons in the present day, especially, the doctrine we have now attempted to establish, will appear very humiliating; and perhaps it is this alone that has prevented many from giving the subject so patient a hearing as its importance seems to require. It is a fashionable kind of philosophy to attribute to the human mind very pre-eminent powers; which so flatter our pride, as in a great measure, perhaps, to pervert our reason, and blind our judgment. The history of the world, and of the dispensations of God to man, are certainly at variance with the popular doctrine respecting the origin of civilization: for if the human mind be possessed of that innate vigour which that doctrine attributes to it, it will be extremely difficult to account for those numerous facts which seem with irresistible evidence to proclaim the contrary; for that unceasing care with which the Deity appears to have watched over us; and for those various and important revelations He has vouchsafed to us. Let us rejoice and be thankful that we are men, and that we are Christians; but let not a vain philosophy tempt us to imagine that we are angels or gods.

Savage Island, one of the small islands in the South Sea, lying in S. Lat. 19. 1. W. Long. 169. 37. It is about seven leagues in circuit, of a good height, and has deep water close to its shores. Its interior parts are supposed to be barren, as there was no soil to be seen upon the coast; the rocks alone supplying the trees with humidity. The inhabitants are exceedingly warlike and fierce, so that Captain Cook could not have any intercourse with them.

SAVANNA-LA-MAR, a town of Jamaica, situated in the county of Cornwall in that island.—It is the county-town, where the assize courts are held, the last Tuesdays in March, June, September, and December. It has lately been ornamented by an elegant court-house, and contains about one hundred other houses. It belongs to Westmoreland parish, in which are 89 sugar-estates, 106 other estates, and 18,000 slaves. Savanna-la-Mar || Savary.

SAVANNAH, the capital of the country of Georgia in North America, situated in W. Long. 101. 20. N. Lat. 32. 0.

SAVARY (James), an eminent French writer on the subject of trade, was born at Done, in Anjou, in 1622. Being bred to merchandize, he continued in trade until 1658; when he left off the practice, to cultivate the theory. He had married in 1650; and in 1660, when the king declared a purpose of assigning privileges and pensions to such of his subjects as had twelve children alive, Mr Savary was not too rich to put in his claim to the royal bounty. He was afterwards admitted of the council for the reformation of commerce; and the orders which passed in 1670 were drawn up by his instructions and advice. He wrote *Le Parfait Negociant*, 4to; and, *Avis et conseils sur les plus importantes matieres du Commerce*, in 4to. He died in 1690; and out of 17 children whom he had by one wife, left 11. Two of his sons, James and Philemon Lewis, laboured jointly on a great work, *Dictionnaire Universelle du Commerce*, 2 vols folio. This work was begun by James, who was inspector-general of the manufactures at the customhouse, Paris; who called in the assistance of his brother Philemon Lewis, although a canon of the royal church of St Maur; and by his death left him to finish it. This work appeared in 1723, and Philemon afterwards added a third supplemental volume to the former. Postlethwayte's English Dictionary of Trade and Commerce is a translation, with considerable improvements, from Savary.

SAVARY, an eminent French traveller and writer, was born at Vitre, in Brittany, about the year 1748. He studied with applause at Rennes, and in 1776 travelled into Egypt, where he remained almost three years. During this period he was wholly engaged in the study of the Arabian language, in searching out ancient monuments, and in examining the national manners. After making himself acquainted with the knowledge and philosophy of Egypt, he visited the islands in the Archipelago, where he spent 18 months. On his return to France, in 1780, he published, 1. A Translation of the Koran, with a short Life of Mahomet, in 1783, 2 vols 8vo. 2. The Morality of the Koran, or a collection of the most excellent maxims in the Koran; a work extracted from his translation, which is esteemed both elegant and faithful. 3. Letters on Egypt, in 3 vols 8vo, in 1785. In these the author makes his observations with accuracy, paints with vivacity, and renders interesting every thing he relates. His descriptions are in general faithful, but are perhaps in some instances too much ornamented. He has been justly censured for painting modern Egypt and its inhabitants in too high colours. These letters, however, were bought up by the curious public, and read with pleasure and advantage. Encouraged by this flattering reception, he prepared his letters upon Greece. He died seen

Savary, Saucisse.

soon after at Paris of a malady contracted from too intense application. A sensible obstruction in the right lobe of the liver had made a decisive progress, which the return of summer, some simple medicines, a strict regimen, and travelling, seemed to remove.

On his return into the country adjacent to Paris, his health however was still doubtful; for it is well known that when the organization of one of the viscera has been much deranged, deep traces of it will ever remain. His active mind, however, made him regardless of his health, and he conceived it his duty to profit by those appearances of recovery which he experienced at the close of the summer and the beginning of autumn, to put into order his travels into the islands of the Archipelago, intended as a continuation of his letters on Egypt. His warmth of temper was exasperated by some lively criticisms which had been made on his former productions, and he gave himself up to study with a degree of activity of which the consequences were sufficiently obvious. An obstruction in the liver again took place, and made a new progress; his digestion became extremely languid; sleep quite forsook him, both by night and by day; a dry and troublesome cough came on; his face appeared bloated, and his legs more and more inflamed. The use of barley water and cream of tartar still however promoted, in some degree, the urinary secretions, and afforded some little glimmering of hope. In this situation he returned to Paris in the beginning of the year 1788, to attend to the publication of his new work concerning the islands of the Archipelago, particularly the isle of Candia. He had then all the symptoms of a dangerous dropsy, which became still more alarming from the very exhausted state of the viscera. The right lobe of the liver was extremely hard and sensible. The patient had shiverings without any regular returns, and his strength was undermined by a hectic fever. At the same time still more uneasy symptoms took place, those of a dropsy in the chest; but the circumstances which destroyed all hope, and announced his approaching dissolution, were a severe pain in the left side, with a very troublesome cough, and a copious and bloody expectoration (*in hepaticis*, says Hippocrates, *sputum cruentum mortiferum*); his respiration became more and more difficult; his strength was exhausted, and his death took place on the 4th of February 1788, attended with every indication of the most copious overflowing in the chest, and of an abscess in the liver.—Thus was destroyed, in the vigour of his age, an author whose character and talents rendered him worthy of the happiest lot.

Mr Savary's genius was lively and well cultivated; his heart warm and benevolent; his imagination vigorous; his memory retentive. He was cheerful and open; and had so great a talent for telling a story, that his company was not less agreeable than instructive. He did not mingle much with the world, but was satisfied with performing well the duties of a son, of a brother, and of a friend.

SAUCISSE, or SAUCISSON, in mining, is a long pipe or bag made of cloth well pitched, or sometimes of leather, of about an inch and an half diameter, filled with powder, going from the chamber of the mine to the entrance of the gallery. It is generally placed in a wooden pipe called an *auget*, to prevent its growing damp. It serves to give fire to mines, cassions, bomb-chests, &c.

Saucisse || Savile.

SAUCISSON, is likewise a kind of fascine, longer than the common ones; they serve to raise batteries and to repair breaches. They are also used in making epaulements, in stopping passages, and in making traverses over a wet ditch, &c.

SAVE, a river of Germany, which has its source in Upper Carniola, on the frontiers of Carinthia.—It runs through Carniola from west to east, afterwards separates Sclavonia from Croatia, Bosnia, and part of Servia, and then falls into the Danube at Belgrade.

SAVER-KROUT. See CROUTE.

SAVERNAKE-FOREST is situated near Marlborough in Wiltshire, and is 12 miles in circumference, well stocked with deer, and delightful from the many vistas cut through the woods and coppices with which it abounds. Eight of these vistas meet, like the rays of a star, in a point near the middle of the forest, where an octagon tower is erected to correspond with the vistas; through one of which is a view of Tottenham Park, Lord Ailesbury's seat, a stately edifice erected after the model, and under the direction, of our modern Vitruvius, the Earl of Burlington, who to the strength and convenience of the English architecture has added the elegance of the Italian.

SAVILE (Sir George), afterwards marquis of Halifax, and one of the greatest statesmen of his time, was born about the year 1630; and some time after his return from his travels was created a peer, in consideration of his own and his father's merits. He was a strenuous opposer of the bill of exclusion; but proposed such limitations of the duke of York's authority, as should disable him from doing any harm either in church or state, as the taking out of his hands all power in ecclesiastical matters, the disposal of the public money, and the power of making peace and war; and lodging these in the two houses of parliament. After that bill was rejected in the house of lords, he pressed them, though without success, to proceed to the limitation of the duke's power; and began with moving, that during the king's life he might be obliged to live five hundred miles out of England. In August 1682 he was created a marquis, and soon after made privy-seal. Upon King James's accession, he was made president of the council; but on his refusal to consent to the repeal of the test, he was dismissed from all public employments. In that assembly of the lords which met after king James's withdrawing himself the first time from Whitehall, the marquis was chosen their president; and upon the king's return from Feversham, he was sent, together with the earl of Shrewsbury and lord Delamere, from the Prince of Orange, to order his majesty to quit the palace at Whitehall. In the convention of parliament he was chosen speaker of the house of lords, and strenuously supported the motion for the vacancy of the throne, and the conjunctive sovereignty of the prince and princess; upon whose accession he was again made privy-seal. Yet, in 1689, he quitted the court, and became a zealous opposer of the measures of government till his death, which happened in April 1695. The rev. Mr Grainger observes, that "he was a person of unsettled principles, and of a lively imagination, which sometimes got the better of his judgment. He would never lose his

Savin || Saunderson.

his jest, though it spoiled his argument, or brought his sincerity or even his religion in question. He was deservedly celebrated for his parliamentary talents; and in the famous contest relating to the bill of exclusion was thought to be a match for his uncle Shaftsbury. The pieces he has left us show him to have been an ingenious, if not a masterly writer; and his *Advice to a Daughter* contains more good sense in fewer words than is, perhaps, to be found in any of his contemporary authors." His lordship also wrote, The Anatomy of an Equivalent; a Letter to a Dissenter; a Rough Draught of a New Model at Sea; and Maxims of State; all which were printed together in one volume 8vo.—Since these were also published under his name the Character of king Charles II. 8vo; the Character of Bishop Burnet, and Historical Observations upon the reigns of Edward I. II. III. and Richard II. with Remarks upon their faithful Counsellors and false Favourites.

SAVIN, in botany. See JUNIPERUS.

SAVIOUR, an appellation peculiarly given to Jesus Christ, as being the Messiah and Saviour of the world. See JESUS.

Order of St SAVIOUR, a religious order of the Romish Church, founded by St Bridget, about the year 1345, and so called from its being pretended that our Saviour himself declared its constitution and rules to the foundress. According to the constitutions, this is principally founded for religious women who pay a particular honour to the holy virgin; but there are some monks of the order, to administer the sacrament and spiritual assistance to the nuns.

SAUL the son of Kish, of the tribe of Benjamin, was the first king of the Israelites. On account of his disobedient conduct, the kingdom was taken from his family, and given to David. See the First Book of Samuel.

SAUL, otherwise called Paul. See PAUL.

SAUMUR, a considerable town of France, in Anjou, and capital of the Saumarois, with an ancient castle. The town is small, but pleasantly situated on the Loire, across which is a long bridge, continued through a number of islands. Saumur was anciently a most important pass over the river, and of consequence was frequently and fiercely disputed by either party, during the civil wars of France in the sixteenth century. The fortifications are of great strength, and Henry the Fourth, on the reconciliation which took place between him and Henry the Third, near Tours, in 1589, demanded that Saumur should be delivered to him, as one of the cities of safety. The castle overlooks the town and river. It is built on a lofty eminence, and has a venerable and magnificent appearance, and was lately used as a prison of state, where persons of rank were frequently confined. The Kings of Sicily, and Dukes of Anjou of the house of Valois, who descended from John king of France, often resided in the castle of Saumur, as it constituted a part of their Angevin dominions. E. Long. 0. 2. N. Lat. 47. 15.

SAUNDERS, a kind of wood brought from the East Indies, of which there are three kinds; white, yellow, and red. See PTEROCARPUS and SANTALUM.

SAUNDERSON (Dr Robert), an eminent casuist, was born at Rotherham in Yorkshire on the 19th September 1587, and was descended of an ancient family. He attended the grammar-school at Rotherham, where he made such wonderful proficiency in the languages, that at 13 it was judged proper to send him to Lincoln college, Oxford. In 1605 he was appointed logic reader in the same college. He took orders in 1611, and was promoted successively to several benefices. Archbishop Laud recommended him to king Charles I. as a profound casuist; and that monarch, who seems to have been a great admirer of casuistical learning, appointed him one of his chaplains in 1631. Charles proposed several cases of conscience to him, and received so great satisfaction from his answers, that at the end of his month's attendance he told him, that he would wait with impatience during the intervening 11 months, as he was resolved to be more intimately acquainted with him, when it would again be his turn to officiate. The king regularly attended his sermons, and was wont to say, that "he carried his ears to hear other preachers, but his conscience to hear Mr Saunderson."

In 1642 Charles created him regius professor of divinity at Oxford, with the canonry of Christ church annexed: but the civil wars prevented him till 1646 from entering on the office; and in 1648 he was ejected by the visitors which the parliament had commissioned. He must have stood high in the public opinion; for in the same year in which he was appointed professor of divinity, both houses of parliament recommended him to the king as one of their trustees for settling the affairs of the church. The king, too, reposed great confidence in his judgment, and frequently consulted him about the state of his affairs. When the parliament proposed the abolition of the episcopal form of church-government as inconsistent with monarchy, Charles desired him to take the subject under his consideration and deliver his opinion. He accordingly wrote a treatise entitled, Episcopacy as established by law in England not prejudicial to regal power. At taking leave, the king advised him to publish Cases of Conscience: he replied, that "he was now grown old and unfit to write cases of conscience." The king said, "it was the simplest thing he ever had heard from him; for no young man was fit to be a judge, or write cases of conscience." Walton, who wrote the life of Dr Saunderson, informs us, that in one of these conferences the king told him (Dr Saunderson), or one of the rest who was then in company, that "the remembrance of two errors did much affect him; which were his assent to the earl of Strafford's death, and the abolishing of episcopacy in Scotland; and that if God ever restored him to the peaceable possession of his crown, he would prove his repentance by a public confession and a voluntary penance, by walking barefoot from the Tower of London, or Whitehall, to St Paul's church, and would desire the people to intercede with God for his pardon."

Dr Saunderson was taken prisoner by the parliament's troops and conveyed to Lincoln, in order to procure in exchange a Puritan divine named *Clark*, whom the king's army had taken. The exchange was agreed to, on condition that Dr Saunderson's living should be restored, and his person and property remain unmolested. The first of these demands was readily complied with: and a stipulation was made, that the second should be observed; but it was impossible to restrain the licentiousness of the soldiers. They entered his

his church in the time of divine service, interrupted him when reading prayers, and even had the audacity to take the common prayer book from him, and to tear it to pieces.

The Honourable Mr Boyle, having read a work of Dr Saunderson's entitled *De juramenti obligatione*, was so much pleased, that he inquired at Bishop Barlow, whether he thought it was possible to prevail on the author to write Cases of Conscience, if an honorary pension was assigned him to enable him to purchase books, and pay an amanuensis. Saunderson told Barlow, "that if any future tract of his could be of any use to mankind, he would cheerfully set about it without a pension." Boyle, however, sent him a present of 50l, sensible no doubt, that, like the other royalists, his finances could not be great. Upon this Saunderson published his book *De Conscientia*.

When Charles II. was reinstated in the throne, he recovered his professorship and canonry, and soon after was promoted to the bishopric of Lincoln. During the two years and a half in which he possessed this new office, he spent a considerable sum in augmenting poor vicarages, in repairing the palace at Bugden, &c. He died January 29. 1662-3, in his 76th year.

He was a man of great acuteness and solid judgment. "That staid and well-weighed man Dr Saunderson (says Dr Hammond) conceives all things deliberately, dwells upon them discreetly, discerns things that differ exactly, passeth his judgment rationally, and expresses it aptly, clearly, and honestly." Being asked, what books he had read most? he replied, that "he did not read many books, but those which he did read were well chosen and frequently perused." These, he said, were chiefly three, Aristotle's Rhetoric, Aquinas's *Secunda Secundæ*, and Tully's Works; especially his Offices, which he had not read over less than 20 times, and could even, in his old age, recite without book." He added, that "the learned civilian Dr Zouch had written *Elementa juris prudentiæ*, which he thought he could also say without book, and that no wise man could read it too often." He was not only conversant with the fathers and schoolmen, with casuistical and controversial divinity; but he was well acquainted with all the histories of the English nation, was a great antiquary, had searched minutely into records, and was well skilled in heraldry and genealogy.

It will now be proper to give a short account of his works. 1. In 1615 he published *Logicæ Artis Compendium*, which was the system of lectures he had delivered in the University when he was logic-reader. 2. Sermons, amounting in number to 36, printed in 1681, folio, with the author's life by Walton. 3. Nine Cases of Conscience resolved; first collected in one volume, in 1678, 8vo. 4. *De juramenti obligatione*. This book was translated into English by Charles I. while a prisoner in the Isle of Wight, and printed at London in 1665, 8vo. 5. *De Obligatione conscientiæ*. 6. Censure of Mr Antony Ascham his book of the confusions and revolutions of government. 7. *Pax Ecclesiæ* concerning Predestination, or the five points. 8. Episcopacy, as established by law in England, not prejudicial to the regal power, in 1661. Besides these, he wrote two Discourses in defence of Usher's writings.

Saunderson (Dr Nicolas), was born at Thurlstone in Yorkshire in 1682, and may be considered as a prodigy for his application and success in mathematical literature in circumstances apparently the most unfavourable. He lost his sight by the small-pox before he was a year old. But this disaster did not prevent him from searching after that knowledge for which nature had given him so ardent a desire. He was initiated into the Greek and Roman authors at a free-school at Penniston. After spending some years in the study of the languages, his father (who had a place in the excise) began to teach him the common rules of arithmetic. He soon surpassed his father; and could make long and difficult calculations, without having any sensible marks to assist his memory. At 18 he was taught the principles of algebra and geometry by Richard West of Undoorbank, Esq; who, though a gentleman of fortune, yet, being strongly attached to mathematical learning, readily undertook the education of so uncommon a genius. Saunderson was also assisted in his mathematical studies by Dr Nettleton. These two gentlemen read books to him and explained them. He was next sent to a private academy at Attercliff near Sheffield, where logic and metaphysics were chiefly taught. But these sciences not suiting his turn of mind, he soon left the academy. He lived for some time in the country without any instructor; but such was the vigour of his own mind, that few instructions were necessary: he only required books and a reader.

His father, besides the place he had in the excise, possessed also a small estate; but having a numerous family to support, he was unable to give him a liberal education at one of the universities. Some of his friends, who had remarked his perspicuous and interesting manner of communicating his ideas, proposed that he should attend the university of Cambridge as a teacher of mathematics. This proposal was immediately put in execution; and he was accordingly conducted to Cambridge in his 25th year by Mr Joshua Dunn, a fellow-commoner of Christ's college. Though he was not received as a member of the college, he was treated with great attention and respect. He was allowed a chamber, and had free access to the library. Mr Whiston was at that time professor of mathematics; and as he read lectures in the way that Saunderson intended, it was naturally to be supposed he would view his project as an invasion of his office. But, instead of meditating any opposition, the plan was no sooner mentioned to him than he gave his consent. Saunderson's reputation was soon spread through the university. When his lectures were announced, a general curiosity was excited to hear such intricate mathematical subjects explained by a man who had been blind from his infancy. The subject of his lectures was the *Principia Mathematica*, the Optics, and *Arithmetica Universalis* of Sir Isaac Newton. He was accordingly attended by a very numerous audience. It will appear at first incredible to many that a blind man should be capable of explaining optics, which requires an accurate knowledge of the nature of light and colours; but we must recollect, that the theory of vision is taught entirely by lines, and is subject to the rules of geometry.

While thus employed in explaining the principles of the Newtonian philosophy, he became known to its illustrious author. He was also intimately acquainted with Halley, Cotes, De Moivre, and other eminent mathematicians. When Whiston was removed from his professor-

professorship, Saunderson was universally allowed to be the man best qualified for the succession. But to enjoy this office, it was necessary, as the statutes direct, that he should be promoted to a degree. To obtain this privilege the heads of the university applied to their chancellor the duke of Somerset, who procured the royal mandate to confer upon him the degree of master of arts. He was then elected Lucasian professor of mathematics in November 1711. His inauguration speech was composed in classical Latin, and in the style of Cicero, with whose works he had been much conversant. He now devoted his whole time to his lectures, and the instruction of his pupils. When George II. in 1728, visited the University of Cambridge, he expressed a desire to see Professor Saunderson. In compliance with this desire, he waited upon his majesty in the senate-house, and was there, by the king's command, created doctor of laws. He was admitted a member of the Royal Society in 1736.

Saunderson was naturally of a vigorous constitution; but having confined himself to a sedentary life, he at length became scorbutic. For several years he felt a numbness in his limbs, which, in the spring of 1739, brought on a mortification in his foot; and, unfortunately, his blood was so vitiated by the scurvy, that assistance from medicine was not to be expected. When he was informed that his death was near, he remained for a little space calm and silent; but he soon recovered his former vivacity, and conversed with his usual ease. He died on the 19th of April 1739, in the 57th year of his age, and was buried at his own request in the chancel at Boxworth.

He married the daughter of the reverend Mr Dickens, rector of Boxworth, in Cambridgeshire, and by her had a son and daughter.

Dr Saunderson was rather to be admired as a man of wonderful genius and assiduity, than to be loved for amiable qualities. He spoke his sentiments freely of characters, and praised or condemned his friends as well as his enemies without reserve. This has been ascribed by some to a love of defamation; but perhaps with more propriety it has been attributed by others to an inflexible love of truth, which urged him upon all occasions to speak the sentiments of his mind without disguise, and without considering whether this conduct would please or give offence. His sentiments were supposed unfavourable to revealed religion. It is said, that he alleged he could not know God, because he was blind, and could not see his works; and that, upon this, Dr Holmes replied, "Lay your hand upon yourself, and the organization which you will feel in your own body will dissipate so gross an error." On the other hand, we are informed, that he had desired the sacrament to be given him on the evening before his death. He was, however, seized with a delirium, which rendered this impossible.

He wrote a system of algebra, which was published, in 2 volumes 4to, at London, after his death, in the year 1740, at the expence of the University of Cambridge.

Dr Saunderson invented for his own use a Palpable Arithmetic; that is, a method of performing operations in arithmetic solely by the sense of touch. It consisted of a table raised upon a small frame, so that he could apply his hands with equal ease above and below. On this table were drawn a great number of parallel lines which were crossed by others at right angles; the edges of the table were divided by notches half an inch distant from one another, and between each notch there were five parallels; so that every square inch was divided into a hundred little squares. At each angle of the squares where the parallels intersected one another, a hole was made quite through the table. In each hole he placed two pins, a big and a small one. It was by the various arrangements of the pins that Saunderson performed his operations. A description of this method of making calculations by his table is given under the article BLIND, n° 38, though it is there by mistake said that it was not of his own invention.

His sense of touch was so perfect, that he could discover with the greatest exactness the slightest inequality of surface, and could distinguish in the most finished works the smallest oversight in the polish. In the cabinet of medals at Cambridge he could single out the Roman medals with the utmost correctness; he could also perceive the slightest variation in the atmosphere. One day, while some gentlemen were making observations on the sun, he took notice of every little cloud that passed over the sun which could interrupt their labours. When any object passed before his face, even though at some distance, he discovered it, and could guess its size with considerable accuracy. When he walked, he knew when he passed by a tree, a wall, or a house. He made these distinctions from the different ways his face was affected by the motion of the air.

His musical ear was remarkably acute; he could distinguish accurately to the fifth of a note. In his youth he had been a performer on the flute; and he had made such proficiency, that if he had cultivated his talents in this way, he would probably have been as eminent in music as he was in mathematics. He recognized not only his friends, but even those with whom he was slightly acquainted, by the tone of their voice; and he could judge with wonderful exactness of the size of any apartment into which he was conducted.

SAVONA, a large, handsome, populous, and strong town of Italy, in the territory of Genoa, with two castles, and a bishop's see. It contains several handsome churches and well-built structures. It was taken by the king of Sardinia in 1746, at which time it had a capacious harbour; but the people of Genoa, being afraid that it would hurt their own trade, choaked it up. It is seated on the Mediterranean sea, in a well-cultivated country, abounding in silk and all kinds of good fruit. E. Long. 8. 14. N. Lat. 44. 21.

SAVONAROLA (Jerome), a famous Italian monk, was born at Ferrara in 1452, and descended of a noble family. At the age of 22 he assumed the habit of a Dominican friar, without the knowledge of his parents, and distinguished himself in that order by his piety and ability as a preacher. Florence was the theatre where he chose to appear; there he preached, confessed, and wrote. He had address enough to place himself at the head of the faction which opposed the family of the Medici. He explained the Apocalypse, and there found a prophecy which foretold the destruction of his opponents. He predicted a renovation of the church, and declaimed with much severity against the clergy and the court of Rome. Alexander VI. excommunicated him, and prohibited him from preaching. He despised the anathemas of the Pope: yet he forbore preaching for

Savonarola. for some time, and then resumed his employment with more applause than before. The Pope and the Medici family then thought of attacking him with his own weapons. Savonarola having posted up a thesis as a subject of disputation, a Franciscan, by their instigation, offered to prove it heretical. The Franciscan was seconded by his brother friars, and Savonarola by his; and thus the two orders were at open war with each other. To settle the dispute, and to convince their antagonists of the superior sanctity of Savonarola, one of the Dominicans offered to walk through a fire; and in order to prove his wickedness, a Franciscan agreed to the same experiment. The multitude, eager to witness so extraordinary a spectacle, urged both parties to come to a decision; and the magistrates were constrained to give their consent. Accordingly, Saturday the 7th of April 1498 was fixed for the trial. On that day the champions appeared; but when they saw one another in cold blood, and beheld the wood in flames, they were seized with fear, and were very anxious to escape by any subterfuge the imminent danger into which they had rashly thrown themselves. The Dominican pretended he could not enter the flames without the host in his hand. This the magistrates obstinately refused to allow; and the Dominican's fortitude was not put to the test. The Franciscans incited the multitude against their opponents, who accordingly assaulted their monastery, broke open the gates which were shut against them, and entered by force. Upon this, the magistrates thought it necessary to bring Savonarola to trial as an impostor. He was put to the torture, and examined; and the answers which he gave fully evinced that he was both a cheat and a fanatic. He boasted of having frequent conversations with God, and found his brother friars credulous enough to believe him. One of the Dominicans, who had shared in his sufferings, affirmed, that he saw the Holy Ghost in the shape of a dove, with feathers of gold and silver, twice in one day alight on the shoulder of Savonarola and peck his ear; he pretended also that he had violent combats with demons. John Francis Picus earl of Mirandula, who wrote his life, assures us, that the devils which infested the convent of the Dominicans trembled at the sight of friar Jerome, and that out of vexation they always suppressed some letters of his name in pronouncing it. He expelled them from all the cells of the monastery. When he went round the convent sprinkling holy water to defend the friars from the insults of the demons, it is said the evil spirits spread thick clouds before him to prevent his passage.—At length, the pope Alexander VI. sent the chief of the Dominicans, with bishop Romolino, to degrade him from holy orders, and to deliver him up to the secular judges with his two fanatical associates. They were condemned to be hanged and burned on the 23d May 1498. Savonarola submitted to the execution of the sentence with great firmness and devotion, and without uttering a word respecting his innocence or his guilt. He was 46 years of age. Immediately after his death, his Confession was published in his name. It contained many extravagancies, but nothing to deserve so severe and infamous a punishment. His adherents did not fail to attribute to him the power of working miracles; and so strong a veneration had they for their chief, that they preserved with pious care any parts of his body which they could snatch from the flames. The earl of Mirandula, the author of his life, has described him as an eminent saint. He gravely informs us, that his heart was found in a river; and that he had a piece of it in his possession, which had been very useful in curing diseases, and ejecting demons. He remarks, that many of his persecutors came to a miserable end. Savonarola has also been defended by Father Quetif, Bzovius, Baron, and other religious Dominicans.

He wrote a prodigious number of books in favour of religion. He has left, 1. Sermons in Italian; 2. A Treatise entitled, *Triumphus crucis*; 3 *Eruditorum Confessorum*, and several others. His works have been published at Leyden in 6 volumes 12mo.

SAVORY, in botany. See SATUREIA.

SAVOUR. See TASTE.

SAVOY, a duchy lying between France and Italy, and which takes its name from the Latin Sabaudia, altered afterwards to Saboia, and Sobojia.

This country was anciently inhabited by the Celtæ, whose descendants therein were subdivided into the Allobroges, Nantuates, Veragri, Seduni, Salassi, Centrones, Garocelli, and some others of inferior note.—Of all these the Allobroges were the most considerable. The reduction of these tribes, in which Julius Cæsar had made a great progress, was completed under Augustus. Afterwards this country shared the fate of the rest of the western empire, and was over-run by the northern barbarians. The Burgundians held it a considerable time; but when or how it first became a distinct earldom under the present family, is what historians are not agreed about: thus much, however, is certain, that Amadæus I. who lived in the 12th century, was count of it. In 1416, Amadæus VIII. was created by the emperor Sigismund duke of Savoy; and Victor Amadæus first took the title of king of Sicily, and afterwards of Sardinia. See SARDINIA. Savoy was lately conquered by the French, and added to the republic as the eightieth department. As this arrangement, though decreed by the convention to last for ever, may probably be of short duration, we shall write of the duchy as of an independent state. Savoy, then, is bounded to the south by France and Piedmont; to the north by the lake of Geneva, which separates it from Switzerland; to the west, by France; and to the east, by Piedmont, the Milanese, and Switzerland; its greatest length being about eighty-eight miles, and breadth about seventy six.

As it lies among the Alps, it is full of lofty mountains, which in general are very barren: many of the highest of them are perpetually covered with ice and snow. The summit of those called *Montagnes Maudites*, "the cursed mountains," are said to be more than two English miles in perpendicular height above the level of the lake of Geneva, and the level itself is much higher than the Mediterranean. In some few of the valleys there is corn-land and pasture, and a good breed of cattle and mules; and along the lake of Geneva, and in two or three other places, a tolerable wine is produced. Mount Senis or Cenis, between Savoy and Piedmont, over which the highway from Geneva to Turin lies, is as high, if not higher, than the *Montagnes Maudites*; but of all the mountains of the Alps, the highest is mount Rochmelon, in Piedmont, between Fertiere and Novalese. The roads over these mountains are very tedious, disagreeable, and dangerous, especially as huge masses of snow, called by the Italians *avalanches*,

avalanches, and fragments of rocks, frequently roll down into them from the impending precipices. The way of travelling is either in sledges, chairs, or on the backs of mules: in some places the path on the brink of the precipices is so narrow, that there is but just room for a single person to pass. It begins to snow on these mountains commonly about the beginning of October. In summer, in the months of July, August, and September, many of them yield very fine grass, with a great variety of flowers and herbs; and others box wood, walnuts, chesnuts, and pines. The height and different combinations of these mountains, their towering summits rising above one another, and covered with snow, the many cataracts or falls of water, the noise and rapidity of the river Arc, the froth and green tincture of its water, the echoes of its numerous streams tumbling from cliff to cliff, form altogether a very romantic scene. These mountainous tracts, notwithstanding their height, are not altogether free from thunder in summer, and are also much exposed to thick clouds, which sometimes settle unexpectedly on them, and continue several days. There are some wolves among the thickets; and they abound with hares, rupicapras or chamois, and marmottes. In the lower parts of Savoy, there are also bears, wild boars, deer, and rabbits; and among the desolate mountains are found great quantities of rock-crystal. In the glacieres or ice valleys, between the high mountains, the air is extremely cold, even in the months of July and August. The surface of these ice-valleys looks like a sea or lake, which, after being agitated by fierce and contrary winds, has been frozen all at once, interspersed with hideous cracks and chasms. The noise of these cracks, when first made by the heat of the noon day sun, and reverberated by the surrounding rocks and mountains, is astonishing. The height of the impending mountains is such, that the sun's rays seldom reach the ice-valleys, except a few hours in the middle of summer. The avalanches or snow-balls, which the least concussion of the air will occasion, tumble down the mountains with amazing rapidity, continually increasing, and carrying all before them. People have been taken out alive, after being buried several days under them. The mountainous nature of this duchy renders the plough a useless instrument of agriculture. The peasants break up the hungry soil with the pickaxe and spade, and to improve it carry up mould and dung in baskets. For the purpose of preserving it from drought in the spring and summer, they cut small reservoirs above it, the water of which may be let out at will; and to prevent the earth from giving way, break the declivity of the mountains by building walls on the side for its support, which frequently assume the appearance of ancient fortification, and are a very pleasing deception to travellers. The Savoyards carry their better sort of cheese into Piedmont, as the flavour is much esteemed there; but they gain more by their skins of bears, chamois, and bouquetins (a species of the wild goat), or by the sale of growse and pheasants, which they carry in great numbers to Turin.

The chief rivers are the Rhone, which, on the side of Geneva, separates Savoy from France; the Arve, which has some particles of gold in its sands; the Isere, the Seran, the Siers, and the Arc. There are also a great many lakes in this country, which yield plenty of fish, but none of them are very large, together with medicinal and reciprocating springs and hot baths.

The language of the common people is a corrupt French; but the better sort, and those that live in the great cities, speak as good French as they do in Paris itself.

In their temper, however, and disposition, the Savoyards resemble the Germans more than the French, retaining still much of the old German honesty and simplicity of manners, which no doubt is partly owing to the poverty and barrenness of the country. To this also, joined to their longevity and the fruitfulness of their women, which are the effects of their cheerful disposition, healthy air, activity, temperance, and sobriety, it is owing that great numbers of them are obliged to go abroad in quest of a livelihood, which they earn, those at least who have no trades, by showing marmottes, cleaning shoes, sweeping chimneys, and the like. It is said, that there are generally about 18,000 of them, young and old, about Paris. In summer they lie in the streets, and in winter, forty, fifty, or sixty of them lodge together in a room: they are so honest that they may be trusted to any amount. The children are often carried abroad in baskets before they are able to walk. In many villages of Savoy there is hardly a man to be seen throughout the year, excepting a month or two. Those that have families generally set out and return about the same season, when their wives commonly lie in, and they never fail to bring home some part of their small earnings. Some of them are such consummate masters of economy, that they set up shops and make fortunes, and others return home with a competency for the rest of their days. An old man is often dispatched with letters, little presents, and some money, from the younger sort, to their parents and relations, and brings back with him fresh colonies, letters, messages, and news. The cultivation of their grounds, and the reaping and gathering in of the harvest and vintage, are generally left to the women and children; but all this is to be understood of the mountainous parts of Savoy. Great numbers of the mountaineers of both sexes are said to be lame and deformed; and they are much subject to a kind of wens, which grow about their throats, and very much disfigure them, especially the women; but that is the only inconvenience they feel from them.

The nobility of Savoy, and the other dominions of the king of Sardinia, labour under great hardships and restrictions, unheard of in other countries, which we have not room here to particularize. A minute account of them will be found in Mr Keysler's Travels. In short, the king has left neither liberty, power, nor much property, to any but himself and the clergy, whose overgrown wealth he has also greatly curtailed.

No other religion is professed or tolerated in Savoy but that of the church of Rome. The decrees, however, of the council of Trent are not admitted; nor are the churches asylums for malefactors.

This duchy is divided into those of Chablais, Genevois, and Savoy Proper, the counties of Tarantaise and Maurienne, and the barony of Faucigny.

SAURIN (James), a celebrated preacher, was born at Nismes in 1677, and was the son of a Protestant lawyer of considerable eminence. He applied to his studies with

with great ſucceſs; but at length being captivated with a military life, he relinquiſhed them for the profeſſion of arms. In 1694 he made a campaign as a cadet in lord Galloway's company, and ſoon afterwards obtained a pair of colours in the regiment of colonel Renault which ſerved in Piedmont. But the duke of Savoy having made peace with France, he returned to Geneva, and reſumed the ſtudy of philoſophy and theology under Turretin and other profeſſors. In 1700 he viſited Holland, then came to England, where he remained for ſeveral years, and married. In 1705 he returned to the Hague, where he fixed his reſidence, and preached with the moſt unbounded applauſe. To an exterior appearance highly prepoſſeſſing, he added a ſtrong harmonious voice. The ſublime prayer which he recited before his ſermon was uttered in a manner highly affecting. Nor was the attention excited by the prayer diſſipated by the ſermon: all who heard it were charmed; and thoſe who came with an intention to criticiſe, were carried along with the preacher and forgot their deſign. Saurin had, however, one fault in his delivery; he did not manage his voice with ſufficient ſkill. He exhauſted himſelf ſo much in his prayer and the beginning of his ſermon, that his voice grew feeble towards the end of the ſervice. His ſermons, eſpecially thoſe publiſhed during his life, are diſtinguiſhed for juſtneſs of thought, force of reaſoning, and an eloquent unaffected ſtyle.

The firſt time that the celebrated Abaddie heard him preach, he exclaimed, "Is it an angel or a man who ſpeaks?" Saurin died on the 30th of December 1730, aged 53 years.

He wrote, 1. Sermons, which were publiſhed in 12 vols 8vo and 12mo; ſome of which diſplay great genius and eloquence, and others are compoſed with negligence. One may obſerve in them the imprecations and the averſion which the Calviniſts of that age were wont to utter againſt the Roman Catholics. Saurin was, notwithſtanding, a lover of toleration: and his ſentiments on this ſubject gave great offence to ſome of his fanatical brethren, who attempted to obſcure his merit, and embitter his life. They found fault with him becauſe he did not call the pope *Antichriſt*, and the Romiſh church *the whore of Babylon*. But theſe prophetic metaphors, however applicable they may be, were certainly not intended by the benevolent religion of Jeſus to be bandied about as terms of reproach; which would teach thoſe to rail who uſe them, and irritate, without convincing, thoſe to whom they were applied.

Saurin, therefore, while he perhaps interpreted theſe metaphors in the ſame way with his oppoſers, diſcovered more of the moderation of the Chriſtian ſpirit. Five volumes of his ſermons were publiſhed in his life, the reſt have been added ſince his deceaſe.

2. Diſcourſes Hiſtorical, Critical, and Moral, on the moſt memorable Events of the Old and New Teſtament. This is his greateſt and moſt valuable work. It was printed firſt in two volumes folio. As it was left unfiniſhed, Beauſobre and Roques undertook a continuation of it, and increaſed it to four volumes. It is full of learning: it is indeed a collection of the opinions of the beſt authors, both Chriſtian and Heathen; of the philoſophers, hiſtorians, and critics, in every ſubject which the author examines. 3. The State of Chriſtianity in France, 1725, 8vo. In this book he diſcuſſes many important points of controverſy, and calls in queſtion the truth of the miracle ſaid to be performed on La Foſſe at Paris. 4. An Abridgment of Chriſtian Theology and Morality, in the form of a Catechiſm, 1722, 8vo. He afterwards publiſhed an abridgment of this work.

A Diſſertation which he publiſhed on the Expediency of ſometimes diſguiſing the Truth, raiſed a multitude of enemies againſt him. In this diſcourſe his plan was, to ſtate the arguments of thoſe who affirm that, in certain caſes, it is lawful to diſguiſe truth, and the anſwers of thoſe who maintain the contrary. He does not determine the queſtion, but ſeems, however, to incline to the firſt opinion. He was immediately attacked by ſeveral adverſaries, and a long controverſy enſued; but his doctrines and opinions were at length publicly approved of by the ſynods of Campen and of the Hague.

The ſubject of this controverſy has long been agitated, and men of equally good principles have ſupported oppoſite ſides. It would certainly be a dangerous maxim that falſehood can ever be lawful. There may, indeed, be particular caſes, when the motives to it are of ſuch a nature as to diminiſh its criminality in a high degree; but to leſſen its guilt is a very different thing from juſtifying it by the laws of morality.

Saurin (Joſeph), a geometrician of the academy of Sciences at Paris, was born at Courtouſon in the principality of Orange, in 1659. His father, who was a miniſter at Grenoble, was his firſt preceptor. He made rapid progreſs in his ſtudies, and was admitted miniſter of Eure in Dauphiny when very young: but having made uſe of ſome violent expreſſions in one of his ſermons, he was obliged to quit France in 1683. He retired to Geneva, and thence to Berne, where he obtained a conſiderable living. He was ſcarcely ſettled in his new habitation, when ſome theologians raiſed a perſecution againſt him. Saurin, hating controverſy, and diſguſted with Switzerland, where his talents were entirely concealed, repaired to Holland. He returned ſoon after to France, and ſurrendered himſelf into the hands of Boſſuet biſhop of Meaux, who obliged him to make a recantation of his errors. This event took place in 1690. His enemies, however, ſuſpected his ſincerity in the abjuration which he had made. It was a general opinion, that the deſire of cultivating ſcience in the capital of France had a greater effect in producing this change than religion. Saurin, however, ſpeaks of the reformers with great aſperity, and condemns them for going too far. "Deceived in my opinions concerning the rigid ſyſtem of Calvin, I no longer regarded that reformer in any other light but as one of thoſe extravagant geniuſes who are carried beyond the bounds of truth. Such appeared to me in general the founders of the reformation; and that juſt idea which I have now obtained of their character has enabled me to ſhake off a load of prejudices. I ſaw in moſt of the articles which have ſeparated them from us, ſuch as the invocation of ſaints, the worſhip of images, the diſtinction of meats, &c. that they had much exaggerated the inevitable abuſes of the people, and imputed theſe to the Romiſh church, as if ſanctioned by its doctrines. Beſides, that they have miſrepreſented thoſe doctrines which were not connected with any abuſe. One thing which ſurpriſed me much when my eyes began to open, was the falſe idea, though in appearance

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Saurin || uvagesia

full of respect, for the word of God, which the reformers entertained of the perfection and perspicuity of the Holy Scriptures, and the manifest misinterpretation of passages which they bring to support that idea (for that misinterpretation is a point which can be proved). Two or three articles still raised some objections in my mind against the Romish church; to wit, Transubstantiation, the adoration of the sacrament, and the infallibility of the church. The adoration of the sacrament I considered as idolatry, and, on that account, removed from her communion. But soon after, the Exposition of the bishop of Meaux, a work which can never be sufficiently admired, and his Treatise concerning changes, reversed all my opinions, and rendered me an enemy to the Reformation." It is said also, that Saurin appeased his conscience by reading Poiret's *Cogitationes rationales*. This book is written with a view to vindicate the church of Rome from the charge of idolatry.

If it was the love of distinction that induced Saurin to return to the Romish church, he was not disappointed; for he there met with protection and support. He was favourably received by Louis XIV. obtained a pension from him, and was treated by the Academy of Sciences with the most flattering respect. At that time (1717), geometry formed his principal occupation. He adorned the *Journal des Savans* with many excellent treatises; and he added to the memoirs of the Academy many interesting papers. These are the only works which he has left behind him. He died at Paris on the 29th December 1737, in his 78th year, of a fever. He married a wife of the family of Crousas in Switzerland, who bore him a son, Bernard-Joseph, distinguished as a writer for the theatre.

Saurin was of a bold and impetuous spirit. He had that lofty deportment which is generally mistaken for pride. His philosophy was austere; his opinions of men were not very favourable; and he often delivered them in their presence: this created him many enemies. His memory was attacked after his decease. A letter was printed in the *Mercure Suisse*, said to be written by Saurin from Paris, in which he acknowledges that he had committed several crimes which deserved death. Some Calvinist ministers published in 1757 two or three pamphlets to prove the authenticity of that letter; but Voltaire made diligent enquiry not only at the place where Saurin had been discharging the sacerdotal office, but at the Deans of the clergy of that department. They all exclaimed against an imputation so opprobrious. It must not, however, be concealed, that Voltaire, in the defence which he has published in his general history of Saurin's conduct, leaves some unfavourable impressions upon the reader's mind. He insinuates, that Saurin sacrificed his religion to his interest; that he played upon Bossuet, who believed he had converted a clergyman, when he had only given a little fortune to a philosopher.

SAURURUS, in botany: A genus of the tetragynia order, belonging to the heptandria class of plants; and in the natural method ranking under the second order, *Piperitæ*. The calyx is a catkin, with uniflorous scales: there is no corolla; there are four germina, and four monospermous berries.

SAUVAGESIA, in botany: A genus of the monogynia order, belonging to the pentandria class of plants; and in the natural method ranking with those of which the order is doubtful. The corolla is pentapetalous and fringed; the calyx pentaphyllous; the nectarium the same, having its leaves placed alternately with the petals; the capsule unilocular.

Sauveur

SAUVEUR (Joseph), an eminent French mathematician, born at La Fleche in 1653. He was absolutely dumb until he was seven years of age; and even then his organs of speech did not disengage themselves so freely, but that he was ever after obliged to speak with great deliberation. Mathematics were the only studies he had any relish for, and these he cultivated with extraordinary success; so that he commenced teacher at 20 years of age, and was so soon in vogue, that he had prince Eugene for his scholar. He was made mathematical professor in the royal college in 1686; and ten years after was admitted a member of the Academy of Sciences. He died in 1716; and his writings, which consist rather of detached papers than of connected treatises, are all inserted in the Memoirs of the Academy of Sciences. He was twice married; and by the last wife had a son, who, like himself, was dumb for the first seven years of his life.

SAW, an instrument which serves to cut into pieces several solid matters; as wood, stone, ivory, &c.

The best saws are of tempered steel ground bright and smooth: those of iron are only hammer-hardened: hence the first, besides their being stiffer, are likewise found smoother than the last. They are known to be well hammered by the stiff bending of the blade; and to be well and evenly ground, by their bending equally in a bow.

Saw-fish. See PRISTIS.

SAXE (Maurice count of), was born the 13th October 1696. He was the natural son of Frederic Augustus II. elector of Saxony, and king of Poland, and of the countess of Konigsmarc, a Swedish lady, celebrated both for her wit and beauty. He was educated along with Frederic Augustus the electoral prince, afterwards king of Poland. His infancy announced the future warrior. Nothing could prevail on him to apply to his studies but the promise of being allowed, after he had finished his task, to mount on horseback, or exercise himself with arms.

He served his first campaign in the army commanded by prince Eugene and the duke of Marlborough, when only twelve years old. He signalized himself at the sieges of Tournay and Mons, and particularly at the battle of Malplaquet. In the evening of that memorable day, he was heard to say, "I'm content with my day's work." During the campaign of 1710, prince Eugene and the duke of Marlborough made many public encomiums on his merit. Next year the young count accompanied the king of Poland to the siege of Stralsund, the strongest place in Pomerania, and displayed the greatest intrepidity. He swam across the river in sight of the enemy, with a pistol in his hand. His valour shone no less conspicuously on the bloody day of Gaedelbusck, where he commanded a regiment of cavalry. He had a horse killed under him, after he had three times rallied his regiment, and led them on to the charge.

Soon after that campaign, his mother prevailed on him to marry the countess of Lubin, a lady both rich and beautiful. This union lasted but a short time. In 1721, the count procured a dissolution of the marriage;

Saxe.

a ſtep of which he afterwards repented. The counteſs left him with regret; but this did not prevent her from marrying ſoon after. The count of Saxe was too fond of pleaſure and variety to ſubmit to the duties which marriage impoſes. In the midſt, however, of the pleaſures in which he ſometimes indulged, he never loſt ſight of his profeſſion. He carried along with him wherever he went a library of military books; and even when he ſeemed moſt taken up with his pleaſures, he never failed to ſpend an hour or two in private ſtudy.

In 1717 he went to Hungary, where the emperor had an army of 15,000 men under the command of prince Eugene. Young count Saxe was preſent at the ſiege of Belgrade, and at a battle which the prince gained over the Turks. On his return to Poland in 1718, he was made a knight of the golden eagle.

The wars in Europe being concluded by the treaties of Utrecht and Poſſarowitz, count Saxe went to France. He had always profeſſed a partiality for that country. French, indeed, was the only foreign language which during his infancy he was willing to learn. He ſpent his whole time during the peace in ſtudying mathematics, fortification, and mechanics, ſciences which exactly ſuited his genius. The mode of exerciſing troops had ſtruck his attention when very young. At 16 he invented a new exerciſe, which was taught in Saxony with the greateſt ſucceſs. Having obtained a regiment in France in 1722, he formed it himſelf according to his new plan. From that moment the *Chevalier Follar*, an excellent judge of military talents, predicted that he would be a great man.

In 1726 the States of Courland choſe him for their ſovereign. But both Poland and Ruſſia roſe in arms to oppoſe him. The Czarina wiſhed to beſtow the duchy on Menzikoff, a happy adventurer, who from a paſtry-cook's boy became a general and a prince. Menzikoff ſent 800 Ruſſians to Milan, where they beſieged the new-choſen duke in his palace. Count Saxe, who had only 60 men, defended himſelf with aſtoniſhing intrepidity. The ſiege was raiſed, and the Ruſſians obliged to retreat. Soon after he retired to Uſmaiz, and prepared to defend his people againſt the two hoſtile nations. Here he remained with only 300 men, till the Ruſſian general approached at the head of 4000 to force his retreat. That general invited the count to a conference, during which he intended to ſurpriſe him, and take him priſoner. The count, informed of the plot, reproached him for his baſeneſs, and broke up the conference. About this time he wrote to France for men and money. Mademoiſelle le Couvreur, a famous actreſs, pawned her jewels and plate, and ſent him the ſum of 40,000 livres. This actreſs had formed his mind for the fine arts. She had made him read the greater part of the French poets, and given him a taſte for the theatre, which he retained even in the camp. The count, unable to defend himſelf againſt Ruſſia and Poland, was obliged in the year 1729 to leave his new dominions, and retire into France. It is ſaid that Anne Iwanowa, ducheſs dowager of Courland, and ſecond daughter of the czar Iwan Alexiowitz, had given him hopes of marriage, and abandoned him at that time becauſe ſhe deſpaired of fixing his wavering paſſion.—This inconſtancy loſt him not only Courland, but the throne of Ruſſia itſelf, which that Princeſs afterwards filled.

Count Saxe, thus ſtript of his territories, devoted himſelf for ſome time to the ſtudy of mathematics. He compoſed alſo, in 13 nights, and during the intervals of an ague, his *Reveries*, which he corrected afterwards. This book is written in an incorrect but forcible ſtyle; it is full of remarks both new and profound, and is equally uſeful to the ſoldier and the general.

The death of the king of Poland his father, in 1733, kindled a new war in Europe. His brother, the elector of Saxony, offered him the command of all his forces, but he preferred the French ſervice, and repaired to the marechal of Berwick's army, which was encamped on the Rhine. "Count," ſaid that general, who was preparing to attack the enemy's entrenchments at Etlinghen, "I was going to ſend for 300 men, but your arrival is of more value than theirs." When the attack began, the count, at the head of a regiment of grenadiers, forced the enemy's lines, and by his bravery decided the victory. He behaved at the ſiege of Philipſburgh with no leſs intrepidity. For theſe ſervices he was, in 1734, rewarded with the rank of lieutenant-general. Peace was concluded in 1736; but the death of Charles VI. emperor of Germany kindled a new war almoſt immediately.

Prague was beſieged by the count of Saxe in 1741, near the end of November, and taken the ſame month by aſſault. The conqueſt of Egra followed that of Prague. It was taken a few days after the trenches were opened. This ſucceſs gave ſo much joy to the Emperor Charles VII. that he wrote a congratulatory letter to the conqueror with his own hands.

In 1744 he was made marechal of France, and commanded a part of the French army in Flanders. During that campaign he diſplayed the greateſt military conduct. Though the enemy was ſuperior in number, he obſerved their motions ſo ſkilfully that they could do nothing.

In January 1745, an alliance was concluded at Warſovia between the queen of Hungary, the king of England, and the States of Holland. The ambaſſador of the States General, meeting marechal Saxe one day at Verſailles, aſked his opinion of that treaty. "I think (ſays he), that if the king my maſter would give me an unlimited commiſſion, I would read the original at the Hague before the end of the year." This anſwer was not a bravado; the marechal was capable of performing it

He went ſoon after, though exceedingly ill, to take the command of the French army in the Low Countries. A gentleman ſeeing the feeble condition in which he left Paris, aſked him how he could in that ſituation undertake ſo great an enterpriſe? "The queſtion (replied he) is not about living, but ſetting out."—Soon after the opening of the campaign, the battle of Fontenoy was fought. Marechal Saxe was at the point of death, yet he cauſed himſelf to be put into a litter, and carried round all the poſts. During the action he mounted on horſeback, though he was ſo very weak that his attendants dreaded every moment to ſee him expire. The victory of Fontenoy, owing entirely to his vigilance and capacity, was followed by the reduction of Tournay, Bruges, Ghent, Oudenarde, Oſtend, Ath, and Bruſſels: This laſt city was taken on the 28th February 1746; and very ſoon after the King ſent to the marechal a letter of naturalization conceived in the moſt flattering

Saxe. flattering terms. The ſucceeding campaigns gained him additional honours. After the victory of Raucoux, which he gained on the 11th October 1746, the king of France made him a preſent of ſix pieces of cannon. He was, on the 12th of January of the following year, created marechal of all the French armies, and, in 1748, commander-general of all thoſe parts of the Netherlands which were lately conquered.

Holland now began to tremble for her ſafety. Maeſtricht and Bergen-op-Zoom had already fallen, and nothing but misfortunes ſeemed to attend the further proſecution of the war. The States General, therefore, offered terms of peace, which were accepted, and a treaty concluded on the 18th October 1748.

Marechal Saxe retired to Chambord, a country ſeat which the king of France had given him. Some time after he went to Berlin, where the king of Pruſſia received him as Alexander would have received Cæſar.—On his return to France, he ſpent his time among men of learning, artiſts, and philoſophers. He died of a fever, on the 30th November 1750, at the age of 54.

Some days before his death, talking to M. Senac his phyſician about his life, "It has been (ſays he) an excellent dream." He was remarkably careful of the lives of his men. One day a general officer was pointing out to him a poſt which would have been of great uſe. "It will only coſt you (ſays he) a dozen grenadiers. "That would do very well," replied the marechal, "were it only a dozen lieutenant-generals."

It was impoſſible for marechal Saxe, the natural brother of the king of Poland, elected ſovereign of Courland, and poſſeſſed of a vigorous and reſtleſs imagination, to be deſtitute of ambition. He conſtantly entertained the notion that he would be a king. After loſing the crown of Ruſſia by his inconſtancy in love, he formed, it is ſaid, the project of aſſembling the Jews, and of being the ſovereign of a nation which for 1700 years had neither poſſeſſed chief nor country. When this chimerical idea could not be realized, he caſt his eyes upon the kingdom of Corſica. After failing in this project alſo, he was buſily employed in planning a ſettlement in ſome part of America, particularly Brazil, when death ſurpriſed him.

He had been educated and died in the Lutheran religion. "It is a pity (ſaid the queen of France, when ſhe heard of his death) that we cannot ſay a ſingle *De profundis (prayer for the dead)* for a man who has made us ſing ſo many *Te Deums*." All France lamented his death.

By his will, which is dated at Paris, March 1. 1748, he directed that his body ſhould be buried in quicklime: "that nothing (ſays he) may remain of me in this world but the remembrance of me among my friends." Theſe orders, however, were not complied with; for his body was embalmed, put into a leaden coffin, which was incloſed in another of copper, and this covered with one of wood, bound about with iron. His heart was put into a ſilver gilt box, and his entrails into another coffin. Louis XV. was at the charge of his funeral. By his order his corpſe was interred with great pomp and ſplendor in the Lutheran church of St Thomas, at Straſburgh, on the 8th February 1751.

The marechal was a man of ordinary ſtature, of a robuſt conſtitution, and extraordinary ſtrength. To an aſpect, noble, warlike, and mild, he joined the excellent qualities of the heart. Affable in his manners, and diſpoſed to ſympathize with the unfortunate, his generoſity ſometimes carried him beyond the limits of his fortune. On his death-bed he reviewed the errors of his life with remorſe, and expreſſed much penitence.

The beſt edition of his Reveries was printed at Paris 1757, in 2 vols 4to. It was compared with the greateſt attention with the original manuſcript in the king's library. It is accompanied with many deſigns exactly engraved, and a Life of the Author. The Life of marechal Saxe was written by M. d'Eſpagnac, 2 vols. 12mo. This hiſtory is written in the panegyrical ſtyle. The author is, however, impartial enough to remark, that in the three battles upon which the reputation of marechal Saxe is founded, he engaged in the moſt favourable circumſtances. "Never did a general (ſays he) ſtand in a more advantageous ſituation. Honoured with the confidence of the king, he was not reſtrained in any of his projects. He always commanded a numerous army: his ſoldiers were ſteady, and his officers poſſeſſed great merit."

SAXIFRAGA, Saxifrage, in botany: A genus of the digynia order, belonging to the decandria claſs of plants; and in the natural method ranking under the 13th order, *Succulentæ*. The calyx is quinquepartite; the corolla pentapetalous; the capſule biroſtrated, unilocular, and polyſpermous.

There are 38 ſpecies; of which the moſt remarkable are, 1. The granulata, or white ſaxifrage, which grows naturally in the meadows in many parts of England. The roots of this plant are like grains of corn, of a reddiſh colour without; from which ariſe kidney-ſhaped hairy leaves, ſtanding upon pretty long footſtalks.—The ſtalks are thick, a foot high, hairy, and furrowed: theſe branch out from the bottom, and have a few ſmall leaves like thoſe below, which ſit cloſe to the ſtalk: the flowers terminate the ſtalk, growing in ſmall cluſters; they have five white petals, incloſing ten ſtamina and the two ſtyles. There is a variety of this with double flowers, which is very ornamental. 2. The pyramidata, with a pyramidal ſtalk, grows naturally on the mountains of Italy. The leaves are tongue-ſhaped, gathered into heads, rounded at their points, and have cartilaginous and ſawed borders. The ſtalk riſes two feet and a half high, branching out near the ground, forming a natural pyramid to the top. The flowers have five white wedge-ſhaped petals, and ten ſtamina, placed circularly the length of the tube, terminated by roundiſh purple ſummits. When theſe plants are ſtrong, they produce very large pyramids of flowers, which make a fine appearance. 3. The punctata, commonly called *London pride* or *London-ſelf-grow*, grows naturally on the Alps, and alſo in great plenty on a mountain in Ireland called *Mangerton*, in the county of Kerry in that iſland. The roots of this are perennial; the leaves are oblong, oval, and placed circularly at bottom. They have broad, flat, furrowed foot-ſtalks, and are deeply crenated at their edges, which are white. The ſtalk riſes a foot high, is of a purple colour, ſtiff, ſlender, and hairy. It ſends out from the ſide on the upper part ſeveral ſhort foot-ſtalks, which are terminated by white flowers ſpotted with red. 4. The oppoſitifolia, grows naturally

Saxo, Saxony.

ly on the Alps, Pyrenees, and Helvetian mountains: it is also found pretty plentifully growing upon Ingleborough hill in Yorkshire, Snowdon in Wales, and some other places. It is a perennial plant, with stalks trailing upon the ground, and are seldom more than two inches long, garnished with small oval leaves standing opposite, which lie over one another like the scales of fish: they are of a brown green colour, and have a resemblance of heath. The flowers are produced at the end of the branches, of a deep blue; and thus make a pretty appearance during their continuance, which is great part of March and the beginning of April. All these species are easily propagated by offsets, or by parting their roots.

Coxe's Travels into Denmark.

SAXO-GRAMMATICUS, descended from an illustrious Danish (A) family, was born about the middle of the 12th century. Stephens, in his edition of Saxo-Grammaticus, printed at Soroë, indubitably proves, that he must have been alive in 1156, but cannot ascertain the exact place and time of his birth. See Stephens's *Prolegomena* to the Notes on Saxo-Grammaticus, p. 8, to 24; also Holberg, vol. i. p 269.; and Mallet's North. Antiq. vol. i. p. 4. On account of his uncommon learning, Saxo was distinguished by the name of *Grammaticus*. He was provost of the cathedral church of Roskild, and warmly patronized by the learned and warlike Absalon, the celebrated archbishop of Lunden, at whose instigation he wrote the History of Denmark. His epitaph, a dry panegyric in bad Latin verses, gives no account of the era of his death, which happened, according to Stephens, in 1204. His history, consisting of 16 books, begins from the earliest account of the Danish annals, and concludes with the year 1186. According to the opinion of an accurate writer, the first part, which relates to the origin of the Danes, and the reigns of the ancient kings, is full of fables; but the eight last books, and particularly those which regard the events of his own times, deserve the utmost credit. He wrote in Latin; the style, if we consider the barbarous age in which he flourished, is in general extremely elegant, but rather too poetical for history. Mallet, in his *Histoire de Dannemarc*, vol. i. p. 182, says, "that Sperling, a writer of great erudition, has proved, in contradiction to the assertions of Stephens and others, that Saxo-Grammaticus was secretary to Absalon; and that the Saxo provost of Roskild was another person, and lived earlier."

Holberg.

SAXONY, the name of two circles of the German empire, an electorate, and a duchy of the same. The lower circle is bounded to the south by the circle of Upper Saxony, and a part of that of the Upper Rhine; to the north, by the duchy of Slesvick, belonging to the king of Denmark, and the Baltic; to the west, by the circle of Westphalia and the north sea; and to the east by the circle of Upper Saxony. The states belonging to it are the dukes and princes of Magdeburg and Bremen, Zell, Grubenhagen, Calenburg, Wolfenbuttle, Halberstadt, Mecklenburg-Schwerin, Mecklenburg-Gustro, Holstein-Gluckstadt, Holstein-Gottorf, Hildesheim, Saxe-Lawenburg; the archbishopric of Lubeck; the principalities of Schwerin, Ratzeburg, Blankenburg, Ranzau; the imperial cities of Lubeck, Gotzlar, Muhlhausen, Nordhausen, Hamburgh, and Bremen. The dukes of Bremen and Magdeburg are alternately directors and summoning princes; but, ever since the year 1682, the diets which used generally to be held at Brunswick or Lunenburg have been discontinued. Towards the army of the empire, which, by a decree of the empire in 1681, was settled at 40,000 men, this circle was to furnish 1322 horsemen and 2707 foot; and of the 300,000 florins granted to the imperial chest in 1707, its quota was 31,271 florins; both which assessments are the same with those of Upper Saxony, Burgundy, Swabia, and Westphalia. This circle at present nominates only two assessors in the chamber-judicatory of the empire, of one of which the elector of Brunswick-Lunenburg has the nomination, who must be a Lutheran, and is the ninth in rank. The inhabitants of this circle are almost all Lutherans.

Saxony.

The circle of Upper Saxony is bounded by that of Franconia, the Upper Rhine, and Lower Saxony; and also by the Baltic sea, Prussia, Poland, Silesia, Lusatia, and Bohemia. It is of great extent, and contains the following states, viz. the electors of Saxony and Brandenburg, Saxe-Weimar, Saxe-Eisenach, Saxe-Cobourg, Saxe-Gotha, Saxe-Altenburg, Saxe-Querfurt, the Hither and Farther Pomerania, Camin, Anhalt, Quidlenburg, Gernrode, Walkenried, Schwarzburg, Sondershausen, Schwarzburg-Rudolstadt, Mansfeld, Stolberg, Barby, the counts of Reussen, and the counts of Schonberg. No diets have been held in this circle since the year 1683. The elector of Saxony has always been the sole summoning prince and director of it. Most of the inhabitants profess the Protestant religion. When the whole empire furnishes 40,000 men, the quota of this circle is 1322 horse and 2707 foot. Of the 300,000 florins granted by the empire in 1707, it contributed only 31,271 florins, 28 kruitzers, being rated no higher than those of Westphalia, Lower Saxony, Swabia, and Burgundy, though it is much larger. Agreeable to a resolution and regulation in 1654, this circle nominates now only two assessors of the chamber-court.

The electorate consists of the duchy of Saxony, the greatest part of the margravate of Meissen, a part of the Vogtland, and the northern half of the landgravate of Thuringia. The Lusatias also, and a part of the country of Henneberg, belong to it, but are no part of this circle. The soil of the electoral dominions lying in this circle is in general exceeding rich and fruitful, yielding corn, fruits, and pulse in abundance, together with hops, flax, hemp, tobacco, aniseed, wild saffron, wood; and in some places woad, wine, coals, porcelain clay, terra sigillata, fullers-earth, fine shiver, various sorts of beautiful marble, serpentine stone, and almost all the different species of precious stones. Sulphur also, alum, vitriol, sand, and free-stone, salt-springs, amber, turf, cinnabar, quicksilver, antimony, bismuth, arsenic, cobalt, and other minerals, are found in it. This country,

(A) Some authors have erroneously conjectured, from his name Saxo, that he was born in Saxony; but Saxe was no uncommon appellation among the ancient Danes. See Olaus Wormius *Monumenta Danica*, p. 166, and Stephens's *Prolegomena*, p. 10.

xony. country, besides the above articles, contains likewise valuable mines of silver, copper, tin, lead, and iron; and abounds in many places with horned cattle, sheep, horses, and venison. The principal rivers by which it is watered are the Elbe, the Schwerze-Elster, the Mulde, the Saale, the Unstrut, the Weisse-Elster, and the Pleisse. These rivers, as well as the lakes and rivulets, abound in fish; and in the White-Elster are found beautiful pearls. This electorate is extremely well cultivated and inhabited, and is said to include about 250 great and small towns, upwards of 5000 villages, 196 royal manors, and near as many royal castles, besides private estates, and commanderies. The provincial diets here consist of three classes. The first is composed of the prelates, the counts, and lords, and the two universities of Leipsic and Wittenberg. To the second belong the nobility in general, immediate or mediate, that is, such as stand immediately under the fief-chancery or the aulic judicatories, and such as are immediately under the jurisdiction of the amtman. The third class is formed of the towns in general. The general provincial diets are ordinarily held every six years; but there are others, called *selection diets*, which are convened commonly every two years. We would here observe, that not only these diets, but those in most of the other states of Germany, are at present extremely insignificant and unimportant, retaining little more than the shadow of their former power and privileges; for even the petty princes, though they depend upon their more potent neighbours, and must be careful not to give them any umbrage, are almost as absolute in their respective territories as the grand seignior himself. As to religion, it was in this country that the reformation took its rise in the 16th century, to which it hath ever since adhered, according to the doctrines of Luther *. The two late electors, when they embraced Popery in order to qualify themselves to be elected kings of Poland, gave the most solemn assurances to their people, that they would inviolably maintain the established religion and its professors in the full and free enjoyment of all their ecclesiastical rights, privileges, and prerogatives whatsoever, in regard to churches, worship, ceremonies, usages, universities, schools, benefices, incomes, profits, jurisdictions, and immunities. The electoral families still continue Roman Catholics, though they have lost the crown of Poland, for which they at first embraced Popery. With respect to ecclesiastical matters, the country is divided into parishes, and these again into spiritual inspections and consistories, all subordinate to the ecclesiastical council and upper consistory of Dresden, in which city and Leipsic the Calvinists and Roman Catholics enjoy the free exercise of their religion. Learning flourishes in this electorate; in which, besides the free-schools and gymnasia in most of the chief towns, are the two celebrated universities of Wittenberg and Leipzig, in the last of which are also societies for the liberal arts and the German language, with booksellers and printers of the greatest eminence. A great variety of manufactures are also carried on in this country. The principal are those of fine and coarse linen, thread, fine lace, paper, fine glasses and mirrors; porcelain, equal if not superior to that of China †; iron, brass, and steel wares; manufactures of gold and silver, cotton, wool, and silk; gloves, caps, hats, and tapestry; in which, and the natural productions mentioned above, together with dyeing, an important foreign commerce is carried on. A great addition has been made since the year 1718 to the electoral territories, by the extinction of the collateral branches of Zeitz, Merseburg, and Weissenfels, whose dominions devolved to the elder electoral branch, descended from the margraves of Meissen. The last of these, who was elector of Saxony, was Frederick the Warlike, about the beginning of the 15th century.

See Reformation, 8.

See Porcelain, 23, 24.

Saxony.

This elector styles himself duke of Saxony, Juliers, Cleve, and Berg, as also of Engern and Westphalia, arch-marshal and elector of the Holy Roman empire, landgrave in Thuringia, margrave of Meissen, and of Upper and Lower Lusatia, burgrave of Magdeburg, princely count of Henneberg, count of La Mark, Ravensberg, Barby, and Hanau, and lord of Ravenstein. Among the electors he is reckoned the sixth, as great-marshal of the empire, of which he is also vicar, during an interregnum, in all places not subject to the vicariate of the count palatine of the Rhine. He is moreover sole director of the circle; and in the vacancy of the see of Mentz claims the directorium at the diet of the empire. His matricular assessment, on account of the electorate, is 1984 florins, besides what he pays for other districts and territories. To the chamber-courts he contributes, each term, the sum of 1545 rix-dollars, together with 83 rix-dollars and 62 kruitzers on account of the county of Mansfeld. In this electorate, subordinate to the privy council, are various colleges for the departments of war, foreign affairs, the finances, fiefs, mines, police, and ecclesiastical affairs, together with high tribunals and courts of justice, to which appeals lie from the inferior. The revenues of this elector are as considerable as those of any prince in the empire, if we except those of the house of Austria. They arise from the ordinary and extraordinary subsidies of the states; his own demesnes, consisting of 72 bailiwics; the impost on beer, and the fine porcelain of the country; tenths of corn, fruit, wine, &c. his own silver mines, and the tenths of those that belong to particulars: all which, added together, bring in an yearly revenue of betwixt 7[illegible]0,000 l. and 800,000 [illegible] yet the electorate is at present deeply in debt. The regular troops commonly amount to 20,000 men, exclusive of the militia of the ban, the arriere-ban, and the body of miners and hunters, who are obliged in time of war to bear arms. The whole electorate is divided into circles.

The electoral circle, or the duchy of Saxony, is bounded by the circles of Meissen, Leipzig, and Thuringia, the principality of Anhalt, the marche of Brandenburg, and Lusatia. The principality of Anhalt lies across it, and divides it into two parts. Its greatest length and breadth is computed at about 40 miles; but though it is watered by the Elbe, the Black Elster, and the Mulde, it is not very fruitful, the soil for the most part consisting of sand. It contains 24 towns, 10 boroughs, betwixt 4[illegible] and 50[illegible] villages, 10 [illegible] estates, 11 superintendencies, three inspections, under one consistory, and 11 prefectures or districts. The present duchy of Saxony is not to be confounded with the old; for the latter was of a much greater extent, and contained in it those large tracts [illegible] *Engern*, and *Westphalia*, of which the electoral circle was no part, but was taken by Albert [illegible] Bear, margrave of Salzwedel, from the Vandals [illegible]

son Bernard obtaining the dignity of duke of Saxony from the emperor Frederic I. the name of *duchy* was given to this country; and the electoral dignity having been afterwards annexed to the duchy, it acquired thereby also the name of the *electoral circle*.

The country of Saxony is remarkable for being the mother of the present English nation; but concerning the Saxons themselves, previous to that period, we have very few particulars. The Saxons (says Mr Whitaker) have been derived by our historians from very different parts of the globe; India, the north of Asia, and the forests of Germany. And their appellation has been equally referred to very different causes; the name of their Indian progenitor, the plundering disposition of their Asiatic fathers, and the short hooked weapons of their warriors. But the real origin of the Saxons, and the genuine derivation of their name, seem clearly to be these.

In the earlier period of the Gallic history, the Celtæ of Gaul crossed the Rhine in considerable numbers, and planted various colonies in the regions beyond it. Thus the Volcæ Tectosages settled on one side of the Hercynian forest and about the banks of the Neckar, the Helvetii upon another and about the Rhine and Maine, the Boii beyond both, and the Senones in the heart of Germany. Thus also we see the Treviri, the Nervii, the Suevi, and the Marcomanni, the Quadi, the Venedi, and others, in that country; all plainly betrayed to be Gallic nations by the Gallic appellations which they bear, and all together possessing the greatest part of it. And, even as late as the conclusion of the first century, we find one nation on the eastern side of this great continent actually speaking the language of Gaul, and another upon the northern using a dialect nearly related to the British. But as all the various tribes of the Germans are considered by Strabo to be γενησιοι Γαλαται, or genuine Gauls in their origin; so those particularly that lived immediately beyond the Rhine, and are asserted by Tacitus to be indubitably native Germans, are expressly denominated Γαλαται, or Gauls, by Diodorus, and as expressly declared by Dio to have been distinguished by the equivalent appellation of *Celtæ* from the earliest period. And the broad line of nations, which extended along the ocean, and reached to the borders of Scythia, was all known to the learned in the days of Diodorus, by the same significant appellation of Γαλαται, or Gauls.

Of these, the most noted were the Si-Cambri and Cimbri; the former being seated near the channel of the Rhine, and the latter inhabiting the peninsula of Jutland. And the denominations of both declare their original; and show them to have been derived from the common stock of the Celtæ, and to be of the same Celtic kindred with the Cimbri of our own Somersetshire, and the Cymbri or Cambrians of our own Wales. The Cimbri are accordingly denominated *Celtæ* by Strabo and Appian. And they are equally asserted to be Gauls by Diodorus; to be the descendants of that nation which sacked the city of Rome, plundered the temple of Delphi, and subdued a great part of Europe and some of Asia.

Immediately to the south of these were the Saxons, extending from the isthmus of the Chersonesus to the current of the Elbe. And they were equally Celtic in their origin as their neighbours. They were denominated *Ambrones* as well as Saxons; and, as such, are included by Tacitus under the general appellation of *Cimbri*, and comprehended in Plutarch under the equal one of *Celto-Scythæ*. And the name of *Ambrones* appears particularly to have been Gallic; being common to the Saxons beyond the Elbe, and the Ligurians in Cisalpine Gaul; as both found to their surprise, on the irruption of the former into Italy with the Cimbri. And what is equally surprising, and has been equally unnoticed by the critics, the Welsh distinguish England by the name of *Loegr* or *Liguria*, even to the present moment. In that irruption these Saxons, Ambrons, or Ligurians, composed a body of more than 30,000 men, and were principally concerned in cutting to pieces the large armies of Manlius and Cæpio. Nor is the appellation of *Saxons* less Celtic than the other. It was originally the same with the Belgic Suessones of Gaul; the capital of that tribe being now intitled *Soisons* by the French, and the name of the Saxons pronounced *Saisen* by the Welsh, *Sason* by the Scotch, and *Sasenach* or *Saxsenach* by the Irish. And the Suessones or Saxones of Gaul derived their own appellation from the position of their metropolis on a river, the stream at Soisons being now denominated the *Aisne*, and formerly the *Axon*; Uess-on or Axon importing only waters or a river, and S-uess-on or S-ax-on the waters or the river. The Suessones, therefore, are actually denominated the *Uessones* by Ptolemy; and the Saxones are actually intitled the *Axones* by Lucan.

Saxony || Scabiosa.

These, with their brethren and allies the Cimbri, having been more formidable enemies to the Romans by land, than the Samnites, Carthaginians, Spaniards, Gauls, or Parthians, in the second century applied themselves to navigation, and became nearly as terrible by sea. They soon made themselves known to the inhabitants of the British isles by their piracies in the northern channels, and were denominated by them *Lochlyn* or *Lochlynach*; lued-lyn signifying the people of the wave, and the D being quiescent in the pronunciation. They took possession of the Orkney islands, which were then merely large shoals of sand, uncovered with woods, and overgrown with rushes; and they landed in the north of Ireland, and ravaged the country. Before the middle of the third century they made a second descent upon the latter, disembarked a considerable body of men, and designed the absolute subjection of the island. Before the conclusion of it, they carried their naval operations to the south, infested the British channel with their little vessels, and made frequent descents upon the coasts. And in the fourth and fifth centuries, acting in conjunction with the Picts of Caledonia and the Scots of Ireland, they ravaged all the eastern and south-eastern shores of Britain, began the formal conquest of the country, and finally settled their victorious soldiery in Lancashire.

SAY, or SAYE, in commerce, a kind of serge much used abroad for linings, and by the religious for shirts; with us it is used for aprons by several sorts of artificers, being usually died green.

SCAB. See ITCH and MEDICINE.

Scab in Sheep. See SHEEP.

SCABIOSA, SCABIOUS, in botany: A genus of the monogynia order, belonging to the tetrandria class of

of plants; and in the natural method ranking under the 48th order, *Aggregatæ*. The common calyx is polyphyllous; the proper one is double superior; the receptacle is paleaceous or naked. The most remarkable species are, 1. The arvensis, or meadow-scabious, grows naturally in many places of Britain. It hath a strong, thick, fibrous root, sending out many branching stalks, which rise to the height of three feet; the lower leaves are sometimes almost entire, and at others they are cut into many segments almost to the midrib. The flowers are produced upon naked footstalks at the end of the branches; they are of a purple colour, and have a faint odour. 2. The succisa, or devil's bit, grows naturally in woods and moist places. This has a short tap-root, the end of which appears as if it was bitten or cut off, whence the plant has taken its name. The leaves are oval and spear shaped, and smooth; the stalks are single, about two feet high, garnished with two leaves at each joint; they generally send out two short foot-stalks from their upper joint, standing opposite, which are terminated by purple flowers.—Both these have been recommended as aperient, sudorific, and expectorant; but the present practice has no dependence on them.

SCABRITA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants. The corolla is monopetalous, and salver-shaped; there are two seeds emarginated superior; the calyx is truncated.

SCÆVOLA (C. Mucius), a young Roman of illustrious birth, is particularly celebrated in the Roman history for a brave but unsuccessful attempt upon the life of Porsena king of Hetruria, about the year before Christ 504. See the article ROME, n° 71.

SCÆVOLA, in botany; a genus of the monogynia order, belonging to the pentandria class of plants. The corolla is monopetalous; the tube slit longitudinally; the border quinquefid and lateral. The fruit is a plum inferior and monospermous; the nucleus bilocular.

SCAFFOLD, among builders, an assemblage of planks and boards, sustained by tressels and pieces of wood fixed in the wall; whereon masons, bricklayers, &c. stand to work, in building high walls, and plasterers in plastering ceilings, &c.

SCAFFOLD, also denotes a timber-work raised in the manner of an amphitheatre, for the more commodious viewing any show or ceremony: it is also used for a little stage raised in some public place, whereon to behead criminals.

SCALA-NOVA (anciently Neapolis), called by the Turks *Koushadase*, is situated in a bay, on the slope of a hill, the houses rising one above another, intermixed with minarees and tall slender cypresses. "A street, through which we rode (says Dr Chandler †), was hung with goat-skins exposed to dry, died of a most lively red. At one of the fountains is an ancient coffin used as a cistern. The port was filled with small craft. Before it is an old fortress on a rock or islet frequented by gulls and seamews. By the water-side is a large and good khan, at which we passed a night on our return. This place belonged once to the Ephesians, who exchanged it with the Samians for a town in Caria."

† Travels in Asia Minor.

SCALADO, or SCALLADE, in the art of war, a furious assault made on the wall or rampart of a city, or other fortified place, by means of ladders, without carrying on works in form, to secure the men.

SCALD-CREAM, sometimes also called *Clouted-cream*: a curious method of preparing cream for butter, almost peculiar to Devonshire. Dr Hales, in Philosophical Transactions, volume 49, page 342, 1755, part iii, gives some account of the method of preparing this delicate and luxurious article: other writers also speak of it. With an elucidation or two, we shall nearly quote Mr Feltham's account from the Gentleman's Magazine, volume 61 part 2. It is there observed, that the purpose of making scald-cream is far superior butter than can be procured from the usual raw cream, being preferable for flavour and keeping; to which those accustomed are so partial, as seldom to eat any other. As leaden cisterns would not answer for scalding cream, the dairies mostly adopt brass pans, which hold from three to five gallons for the milk; and that which is put into those pans one morning, stands till the next, when, without disturbing it, it is set over (on a trivet) a steady brisk wood fire, devoid of smoke, where it is to remain from seven to fifteen minutes, according to the size of the pan, or the quantity in it: the precise time of removing it from the fire must be particularly attended to, and is, when the surface begins to wrinkle or to gather in a little, showing signs of being near the agitation of boiling, which it must by no means do; it is then instantly to be taken off, and placed in the dairy until the next morning, when the fine cream is thrown up, and may be taken for the table, or for butter, into which it is now soon converted by stirring it with the hand. Some know when to remove it from the fire by sounding the pan with the finger, it being then less sonorous; but this is only acquired by experience. Dr Hales observes, that this method of preparing milk will take off the ill taste it sometimes acquires from the cows feeding on turnips, cabbage, &c.

SCALDS, in the history of literature, a name given by the ancient inhabitants of the northern countries to their poets; in whose writings their history is recorded.

SCALE, a mathematical instrument consisting of several lines drawn on wood, brass, silver, &c. and variously divided, according to the purposes it is intended to serve; whence it acquires various denominations, as the *plain scale*, *diagonal scale*, *protracting scale*, &c. See GEOMETRY.

SCALE, in music, sometimes denominated a *gamut*, a *diagram*, a *series*, an *order*, a *diagram*. It consists of the regular gradations of sound, by which a composer or performer, whether in rising or descending, may pass from any given tune to another. These gradations are seven. When this order is repeated, the first note of the second is consentaneous with the lowest note of the first; the second of the former with the second of the latter; and so through the whole octave. The second order, therefore, is justly esteemed only a repetition of the first. For this reason the scale, among the moderns, is sometimes limited to an octave; at other times extended to the compass of any particular voice or instrument. It likewise frequently includes all the practical gradations of musical sound, or the whole number of notes employed in composition or execution, arranged in their natural order.

SCALENE, or SCALENOUS TRIANGLE, *σκαληνος*, in geometry, a triangle whose sides and angles are unequal. See GEOMETRY.

SCA-

SCALENUS, in anatomy. See there, *Table of the Muſcles.*

SCALIGER (Julius Cæſar), a learned critic, poet, phyſician, and philoſopher; was born at the caſtle of Ripa, in the territories of Verona, in 1484; and is ſaid to have been deſcended from the ancient princes of Verona, though this is not mentioned in the letters of naturalization he obtained in France in 1528. He learned the firſt rudiments of the Latin tongue in his own country; and in his 12th year was preſented to the Emperor Maximilian, who made him one of his pages. He ſerved that emperor 17 years, and gave ſignal proofs of his valour and conduct in ſeveral expeditions. He was preſent at the battle of Ravenna in April 1512, in which he had the misfortune to loſe his father Benedict Scaliger, and his brother Titus; on which his mother died with grief: when being reduced to neceſſitous circumſtances, he entered into the order of the Franciſcans, and applied himſelf to ſtudy at Bologna; but ſoon after changing his mind with reſpect to his becoming a monk, he took arms again, and ſerved in Piedmont. At which time a phyſician perſuaded him to ſtudy phyſic, which he did at his leiſure-hours, and alſo learned Greek; and at laſt the gout determined him, at 40 years of age, to abandon a military life. He ſoon after ſettled at Agen, where he married, and began to apply himſelf ſeriouſly to his ſtudies. He learned firſt the French tongue, which he ſpoke perfectly in three months; and then made himſelf maſter of the Gaſcon, Italian, Spaniſh, German, Hungarian, and Sclavonian: but the chief object of his ſtudies was polite literature. Meanwhile, he ſupported his family by the practice of phyſic. He did not publiſh any of his works till he was 47 years of age; when he ſoon gained a great name in the republic of letters. He had a graceful perſon, and ſo ſtrong a memory, even in his old age, that he dictated to his ſon 200 verſes which he had compoſed the day before, and retained without writing them down. He was ſo charitable, that his houſe was as it were an hoſpital for the poor and ſick; and he had ſuch an averſion to lying, that he would have no correſpondence with thoſe who were given to that vice; but, on the other hand, he had much vanity, and a ſatirical ſpirit, which created him many enemies. He died of a retention of urine in 1558. He wrote in Latin, 1. A Treatiſe on the Art of Poetry. 2. Exercitations againſt Carden: which works are much eſteemed. 3. Commentaries on Ariſtotle's Hiſtory of Animals, and on Theophraſtus on Plants. 4. Some Treatiſes on Phyſic. 5. Letters, Orations, Poems, and other works, in Latin.

SCALIGER (Joſeph Juſtus), one of the moſt learned critics and writers of his time; he was the ſon of the former, and was born at Agen in France in 1540. He ſtudied in the college of Bourdeaux; after which his father took him under his own care, and employed him in tranſcribing his poems; by which means he obtained ſuch a taſte for poetry, that before he was 17 years old he wrote a tragedy upon the ſubject of Oedipus, in which he introduced all the poetical ornaments of ſtyle and ſentiment. His father dying in 1558, he went to Paris the year following, with a deſign to apply himſelf to the Greek tongue. For this purpoſe he for two months attended the lectures of Turnebus; but finding that in the uſual courſe he ſhould be a long time in gaining his point, he ſhut himſelf up in his cloſet, and by conſtant application for two years gained a perfect knowledge of that language. After which he applied to the Hebrew, which he learned by himſelf with great facility. He made no leſs progreſs in the ſciences; and his writings procured him the reputation of one of the greateſt men of that or any other age. He embraced the reformed religion at 22 years of age. In 1563, he attached himſelf to Lewis Caſteignier de la Roch Pozay, whom he attended in ſeveral journeys; and in 1593, was invited to accept of the place of honorary profeſſor of the univerſity of Leyden, which he complied with. He died of a dropſy in that city in 1609. He was a man of great temperance; was never married; and was ſo cloſe a ſtudent, that he often ſpent whole days in his ſtudy without eating; and though his circumſtances were always very narrow, he conſtantly refuſed the preſents that were offered him. He publiſhed many works; the principal of which are, 1. Notes on Seneca's Tragedies, on Varro, Auſonius, Pompeius Feſtus, &c. 2. His Latin Poems. 3. A Treatiſe *de Emendatione Temporum.* 4. Euſebius's Chronicle with Notes. 5. *Canones Iſagogici;* and many other works. The collections intitled *Scaligeriana*, were collected from his converſations by one of his friends; and being ranged into alphabetical order, were publiſhed by Iſaac Voſſius.

SCALLOP, in ichthyology. See PECTEN.

In the Highlands of Scotland, the great ſcallop ſhell is made uſe of for the ſkimming of milk. In old times, it had a more honourable place; being admitted into the halls of heroes, and was the cup of their feſtivity when the tribe aſſembled in the hall of their chieftain.

SCALPEL, in ſurgery, a kind of knife uſed in anatomical diſſections and operations in ſurgery.

SCALPER, or SCALPING-IRON, a ſurgeon's inſtrument uſed for ſcraping foul carious bones.

SCALPING, in military hiſtory, a barbarous cuſtom, in practice among the Indian warriors, of taking off the tops of the ſcalps of the enemies ſkulls with their hair on. They preſerve them as trophies of their victories, and are rewarded by their chiefs according to the number of ſcalps they bring in.

SCALPRA DENTALIA, inſtruments uſed by the ſurgeons to take off thoſe black, livid, or yellow cruſts which infeſt the teeth, and not only looſe and deſtroy them, but taint the breath.

SCAMMONY, a concreted vegetable juice of a ſpecies of convolvulus, partly of the reſin, and partly of the gum kind. See CONVOLVULUS.

The beſt ſcammony comes from Aleppo, in light ſpongy maſſes, eaſily friable, of a ſhining aſh-colour verging to black; when powdered, of a light grey or whitiſh colour: an inferior ſort is brought from Smyrna, in more compact ponderous pieces, of a darker colour, and full of ſand and other impurities. This juice is chiefly of the reſinous kind; rectified ſpirit diſſolves five ounces out of ſix, the remainder is a mucilaginous ſubſtance mixed with droſs; proof-ſpirit totally diſſolves it, the impurities only being left. It has a faint unpleaſant ſmell, and a bitteriſh, ſomewhat acrimonious, taſte.

Scammony is an efficacious and ſtrong purgative. Some have condemned it as unſafe, and laid ſundry ill qualities to its charge; the principal of which is, that

its operation is uncertain, a full dose proving sometimes ineffectual, whilst at others a much smaller one occasions dangerous hypercatharsis. This difference, however, is owing entirely to the different circumstances of the patient, and not to any ill quality or irregularity of operation of the medicine: where the intestines are lined with an excessive load of mucus, the scammony passes through without exerting itself upon them; where the natural mucus is deficient, a small dose of this or any other resinous cathartic irritates and inflames. Many have endeavoured to abate the force of this drug, and correct its imaginary virulence, by exposing it to the fume of sulphur, dissolving it in acid juices, and the like; but this could do no more than destroy as it were a part of the medicine, without making any alteration in the rest. Scammony in substance, judiciously managed, stands not in need of any corrector: if triturated with sugar or with almonds, it becomes sufficiently safe and mild in operation. It may likewise be conveniently dissolved by trituration in a strong decoction of liquorice, and then poured off from the fæces; the college of Wertemberg assures us, that by this treatment it becomes mildly purgative, without being attended with gripes, or other inconveniences; and that it likewise proves inoffensive to the palate. The common dose of scammony is from three to twelve grains.

SCANDALUM MAGNATUM, in law, is a defamatory speech or writing to the injury of a person of dignity; for which a writ that bears the same name is granted for the recovery of damages.

SCANDERBEG, the surname of George Castriot king of Albania, a province of Turkey in Europe, dependent on the Ottoman empire. He was delivered up with his three elder brothers as hostages, by their father, to Amurath II. sultan of the Turks, who poisoned his brothers, but spared him on account of his youth, being likewise pleased with his juvenile wit and amiable person. In a short time he became one of the most renowned generals of the age; and revolting from Amurath, he joined Hunniade Corvin, a most formidable enemy to the Ottoman power. He defeated the sultan's army, took Amurath's secretary prisoner, obliged him to sign and seal an order to the governor of Croia, the capital of Albania, to deliver up the citadel and city to the bearer of that order, in the name of the sultan. With this forged order he repaired to Croia; and thus recovered the throne of his ancestors, and maintained the independency of his country against the numerous armies of Amurath and his successor Mahommed II. who was obliged to make peace with this hero in 1461. He then went to the assistance of Ferdinand of Arragon, at the request of Pope Pius II. and by his assistance Ferdinand gained a complete victory over his enemy the count of Anjou. Scanderbeg died in 1467.

SCANDEROON. See ALEXANDRETTA.

SCANDINAVIA, a general name for the countries of Norway, Sweden, and Denmark, anciently under the dominion of one prince. The inhabitants of these countries, in former times, were excessively addicted to war. From their earliest years they applied themselves to the military art, and accustomed themselves to cold, fatigue, and hunger. Even the very sports of youth and childhood were dangerous. They consisted in taking frightful leaps, climbing up the steepest rocks, fighting naked with offensive weapons, wrestling with the utmost force; so that it was usual to see them grown up to be robust men, and terrible in the combat, at the age of 15. At this early age the young men became their own masters; which they did by receiving a sword, a buckler, and a lance. This ceremony was performed at some public meeting. One of the principal men of the assembly armed the youth in public; after which he was obliged to provide for his own subsistence, and was either now to live by hunting, or by joining in some incursion against the enemy. Great care was taken to prevent the young men from too early connections with the female sex; and indeed they could have no hope to gain the affection of the fair, but in proportion to the courage and address they had shown in their military exercises. Accordingly, in an ancient song, we find Bartholin, king of Norway, extremely surprised that his mistress should prove unkind, as he could perform eight different exercises. The children were generally born in camps; and being inured from their infancy to behold nothing but arms, effusion of blood, and slaughter, they imbibed the cruel disposition of their fathers, and when they broke forth upon other nations, behaved rather like furies than like human creatures.

The laws of this people, in some measure, resembled those of the ancient Lacedemonians. They knew no virtue but bravery, and no vice but cowardice. The greatest penalties were inflicted on such as fled from battle. The laws of the ancient Danes declared such persons infamous, and excluded them from society. Among the Germans, cowards were sometimes suffocated in mud; after which they were covered over with hurdles, to show, says Tacitus, that though the punishment of crimes should be public, there are certain degrees of cowardice and infamy which ought to be buried in oblivion. Frotho king of Denmark enacted, by law, that whoever solicited an eminent post on at upon all occasions to attack one enemy, to face two, to retire only one step back from three, and never to make an actual retreat till assaulted by four. The rules of justice themselves were adapted and warped to these prejudices. War was looked upon as a real act of justice, and force was thought to be an incontestable title over the weak, and a visible mark that God had intended them to be subject to the strong. They had no doubt but that the intentions of the Deity had been to establish the same dependence among men that takes place among inferior creatures; and, setting out from this principle of the natural *inequality* among men, they had from thence inferred that the weak had no right to what they could not defend. The laws were adopted with such rigour, that the greatest encouragement was given not only to the cowardly coward, but to conflicts and battles of all sorts; victory being, in their opinion, the only certain mark by which providence enables us to distinguish those whom it has appointed to command others. Lastly, their religion, by annexing eternal happiness to the military virtues, gave the utmost possible degree of vigour to that propensity which these people had for war, and to their contempt of death, of which we shall now give some instances. We are informed that Harold, surnamed *Bluetooth*, a king of Denmark, who lived in the [illegible]

Scandinavia.

ginning of the ninth century, had founded on the coasts of Pomerania a city named *Julin* or *Jomsburg*. To this place he sent a colony of young Danes, bestowing the government on a celebrated warrior called *Palnatoko*. In this colony it was forbidden to mention the word *fear*, even in the most imminent dangers. No citizen of Jomsburg was to yield to any number of enemies however great. The sight of inevitable death was not to be taken as an excuse for showing the smallest apprehension. And this legislator really appears to have eradicated from the minds of most of the youths bred up under him, all traces of that sentiment so natural and so universal, which makes men think on their destruction with horror. Nothing can show this better than a single fact in their history, which deserves to have place here for its singularity. Some of them having made an irruption into the territories of a powerful Norwegian lord, named *Haquin*, were overcome in spite of the obstinacy of their resistance; and the most distinguished among them being made prisoners, were, according to the custom of those times, condemned to death. The news of this, far from afflicting them, was on the contrary received with joy. The first who was led to punishment was content to say, without changing countenance, and without expressing the least sign of fear, "Why should not the same happen to me as did to my father? He died, and so must I." A warrior, named *Thorchill*, who was to cut off the head of the second, having asked him what he felt at the sight of death, he answered, "that he remembered too well the laws of Jomsburg to utter any words that denoted fear." The third, in reply to the same question, said, "he rejoiced to die with glory; and that he preferred such a death to an infamous life like that of Thorchill's." The fourth made an answer much longer and more extraordinary. "I suffer with a good heart; and the present hour is to me very agreeable. I only beg of you (added he, addressing himself to Thorchill) to be very quick in cutting off my head; for it is a question often debated by us at Jomsburg, whether one retains any sense after being beheaded. I will therefore grasp this knife in my hand; if, after my head is cut off, I strike it towards you, it will show I have not lost all sense; if I let it drop, it will be a proof of the contrary Make haste therefore, and decide the dispute." Thorchill, adds the historian, cut off his head in a most expeditious manner; but the knife, as might be expected, dropt from his hand. The fifth showed the same tranquillity, and died rallying and jeering his enemies. The sixth begged of Thorchill, that he might not be led to punishment like a sheep: "Strike the blow in my face (said he), I will sit still without shrinking; and take notice whether I once wink my eyes, or betray one sign of fear in my countenance: for we inhabitants of Jomsburg are used to exercise ourselves in trials of this sort, so as to meet the stroke of death without once moving." He kept his promise before all the spectators, and received the blow without betraying the least sign of fear, or so much as winking with his eyes. The seventh, says the historian, was a very beautiful young man, in the flower of his age. His long hair, as fine as silk, floated in curls and ringlets on his shoulders. Thorchill asked him, what he thought of death? "I receive it willingly (said he), since I have fulfilled the greatest duty of life, and have seen all those put to death whom I would not survive. I only beg of you one favour, not to let my hair be touched by a slave, or stained with my blood."

Scandinavia || Scanning.

Neither was this intrepidity peculiar to the inhabitants of Jomsburg; it was the general character of all the Scandinavians, of which we shall only give this further instance. A warrior, having been thrown upon his back in wrestling with his enemy, and the latter finding himself without his arms, the vanquished person promised to wait, without changing his posture, till his antagonist fetched a sword to kill him; and he faithfully kept his word.—To die with his arms in his hand was the ardent wish of every free man; and the pleasing idea which they had of this kind of death led them to dread such as proceeded from old age and disease. The history of ancient Scandinavia is full of instances of this way of thinking. The warriors who found themselves lingering in disease, often availed themselves of their few remaining moments to shake off life, by a way that they supposed to be more glorious. Some of them would be carried into a field of battle, that they might die in the engagement. Others slew themselves: many procured this melancholy service to be performed by their friends, who considered it as a most sacred duty. "There is, on a mountain of Iceland, (says the author of an old Iceland romance), a rock so high, that no animal can fall from the top and live. Here men betake themselves when they are afflicted and unhappy. From this place all our ancestors, even without waiting for sickness, have departed into Eden. It is useless, therefore, to give ourselves up to groans and complaints, or to put our relations to needless expences, since we can easily follow the example of our fathers, who have all gone by the way of this rock."—When all these methods failed, and at last when Christianity had banished such barbarous practices, the disconsolate heroes consoled themselves by putting on complete armour as soon as they found their end approaching.

SCANDIX, Shepherds Needle, or *Venus Comb*, in botany: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking under the 45th order, *Umbellatæ*. The corolla is radiating; the fruit subulated; the petals emarginated; the florets of the disc frequently male. The most remarkable species is the odorata, with angular furrowed seeds. It is a native of Germany; and has a very thick perennial root, composed of many fibres, of a sweet aromatic taste like aniseed, from which come forth many large leaves that branch out somewhat like those of fern, from whence it is named *sweet-fern*. The stalks grow four or five feet high, are fistulous and hairy; the flowers are disposed in an umbel at the top of the stalk, are of a white colour, and have a sweet aromatic scent.—This species is easily propagated by seeds, which, if permitted to scatter, will supply an abundance of young plants, that may be put into any part of the garden, and require no care.

SCANNING, in poetry, the measuring of verse by feet, in order to see whether or not the quantities be duly observed. The term is chiefly used in Greek and Latin verses. Thus an hexameter verse is scanned by resolving it into six feet; a pentameter, by resolving it into five feet, &c.

Scanto, || Scapula.

SCANTO, or SPAVENTO, a ſudden impreſſion of horror upon the mind and body. It is extremely dreaded by the inhabitants of Sicily; and the wild ideas of the vulgar part of the inhabitants reſpecting it are almoſt incredible, and their dread of a ſudden ſhock is no leſs ſurpriſing. There is ſcarce a ſymptom, diſorder, or accident, they do not think may befal the human frame in conſequence of the ſcanto. They are perſuaded that a man who has been frightened only by a dog, a viper, ſcorpion, or any other creature, which he has an antipathy to, will ſoon be ſeized with the ſame pains he would really feel, had he been torn with their teeth, or wounded with their venomous ſting; and that nothing can remove theſe nervous imaginary pangs but a ſtrong doſe of dilena, a ſpecies of cantharides found in Sicily.

Ashburne's Travels in Ancient Sicily.

SCAPE-GOAT, in the Jewiſh antiquities, the goat which was ſet at liberty on the day of ſolemn expiation. For the ceremonies on this occaſion, ſee Levit. xvi. 5, 6, &c.

Some ſay, that a piece of ſcarlet cloth, in form of a tongue, was tied on the forehead of the ſcape-goat. *Hoff. Lex. Univ. in voc. Lingua.*

Many have been the diſputes among the interpreters concerning the meaning of the word *ſcape-goat*; or rather of *azazel*, for which *ſcape-goat* is put in our verſion of the Bible.

Spencer is of opinion, that azazel is a proper name, ſignifying the devil or evil dæmon. See his reaſons in his book *De leg. Hebr. ritual.* Differt. viii. Among other things, he obſerves, that the ancient Jews uſed to ſubſtitute the name *Samaël* for *Azazel*; and many of them have ventured to affirm, that at the feaſt of expiation they were obliged to offer a gift to Samael to obtain his favour. Thus alſo the goat, ſent into the wilderneſs to Azazel, was underſtood to be a gift or oblation. Some Chriſtians have been of the ſame opinion. But Spencer thinks that the genuine reaſons of the ceremony were, 1. That the goat, loaded with the ſins of the people, and ſent to Azazel, might be a ſymbolical repreſentation of the miſerable condition of ſinners. 2. God ſent the goat thus loaded to the evil dæmons, to ſhow that they were impure, thereby to deter the people from any converſation or familiarity with them. 3. That the goat ſent to Azazel, ſufficiently expiating all evils, the Iſraelites might the more willingly abſtain from the expiatory ſacrifices of the Gentiles

SCAPULA, in anatomy, the ſhoulder, or ſhoulder-bone.

SCAPULA (John), the reputed author of a Greek lexicon, ſtudied at Lauſanne. His name is recorded in the annals of literature, neither on account of his talents nor learning, nor virtuous induſtry, but for a groſs act of diſingenuity and fraud which he committed againſt an eminent literary character of the 16th century. Being employed by Henry Stephens as a corrector to his preſs while he was publiſhing his *Thesaurus linguæ Græcæ*, Scapula extracted thoſe words and explications which he reckoned moſt uſeful, compriſed them in one volume, and publiſhed them as an original work, with his own name.

The compilation and printing of the Theſaurus had coſt Stephens immenſe labour and expence; but it was ſo much admired by thoſe learned men to whom he had ſhown it, and ſeemed to be of ſuch eſſential importance to the acquiſition of the Greek language, that he reaſonably hoped his labour would be crowned with honour, and the money he had expended would be repaid by a rapid and extenſive ſale. But before his work came abroad, Scapula's abridgment appeared; which, from its ſize and price, was quickly purchaſed, while the Theſaurus itſelf lay neglected in the author's hands. The conſequence was, a bankruptcy on the part of Stephens, while he who had occaſioned it was enjoying the fruits of his treachery. Scapula's Lexicon was firſt printed in 1579, in 4to. It was afterwards enlarged, and publiſhed in folio. It has gone through ſeveral editions, while the valuable work of Stephens has never been reprinted. Its ſucceſs is, however, not owing to its ſuperior merit, but to its price and more commodious ſize. Stephens charges the author with omitting a great many important articles. He accuſes him of miſunderſtanding and perverting his meaning; and of tracing out abſurd and trifling etymologies, which he himſelf had been careful to avoid. He compoſed the following epigram on Scapula:

Quidam ἐπιτίμων *me* capulo *tenus abdidit enſem*
Æger eram a Scapulis, *ſanus et huc redeo.*

Doctor Buſby, ſo much celebrated for his knowledge of the Greek language, and his ſucceſs in teaching it, would never permit his ſcholars at Weſtminſter ſchool to make uſe of Scapula.

SCAPULAR, in anatomy, the name of two pair of arteries, and as many veins.

SCAPULAR, or *Scapulary*, a part of the habit of ſeveral religious orders in the church of Rome, worn over the gown as a badge of peculiar veneration for the Bleſſed Virgin. It conſiſts of two narrow ſlips or breadths of cloth covering the back and the breaſt, and hanging down to the feet. The devotees of the ſcapulary celebrate its feſtival on the 16th of July

Scapular || Scarabæus.

SCARABÆUS, the BEETLE, in zoology, a genus of inſects of the coleoptera order: the antennæ of the beetles are of a clavated figure, and fiſſile longitudinally; and their legs are frequently dentated. There are 87 ſpecies; all, however, concurring in one common formation of having cates to their wings, which are the more neceſſary to thoſe inſects, as they often live under the ſurface of the earth, in holes, which they dig out by their own induſtry. The cates prevent the various injuries their real wings might ſuſtain by rubbing or cruſhing againſt the ſides of their abode. Theſe, though they do not aſſiſt flight, yet keep the internal wings clean and even, and produce a loud buzzing noiſe when the animal riſes in the air.

If we examine the formation of all animals of the beetle kind, we ſhall find, as in ſhell fiſh, that their bones are placed externally, and their muſcles within. Theſe muſcles are formed very much like thoſe of quadrupeds; and are formed with ſuch ſurpriſing ſtrength, that, bulk for bulk, they are a thouſand times ſtronger than thoſe of a man. The ſtrength of theſe muſcles is of uſe in digging the animal's ſubterraneous abode, whither it moſt frequently returns, even after it becomes a winged inſect capable of flying.

Beſides the difference which reſults from the ſhape and colour of theſe animals, the ſize alſo makes a conſiderable one; ſome beetles being not larger than the

Scarabæus. head of a pin; while others, such as the elephant beetle, are as big as one's fist. But the greatest difference among them is, that some are produced in a month, and in a single season go through all the stages of their existence; while others take near four years to their production, and live as winged insects a year more.

The may-bug, dorr-beetle, or cock-chaffer, has, like all the rest, a pair of cases to its wings, which are of a reddish brown colour, sprinkled with a whitish dust, which easily comes off. In some years their necks are seen covered with a red plate, and in others with a black; these, however, are distinct sorts, and their difference is by no means accidental. The fore legs are very short, and the better calculated for burrowing in the ground, where this insect makes its retreat. It is well known, for its evening buzz, to children; but still more formidably introduced to the acquaintance of the husbandman and gardener, for in some seasons it has been found to swarm in such numbers as to eat up every vegetable production.

The two sexes in the may-bug are easily distinguished from each other, by the superior length of the tufts, at the end of the horns, in the male. They begin to copulate in summer; and at that season they are seen joined together for a considerable time. They fly about in this state, the one hanging pendant from the tail of the other. It has been supposed, that, like snails, they are hermaphrodites, as there seems to be a mutual insertion.

The female being impregnated, quickly falls to boring a hole into the ground, wherein to deposit her burden. This is generally about half a foot deep; and in it she places her eggs, which are of an oblong shape, with great regularity, one by the other. They are of a bright yellow colour, and no way wrapped up in a common covering, as some have imagined. When the female is lightened of her burden, she again ascends from her hole, to live, as before, upon leaves and vegetables, to buzz in the summer evening, and to lie hid among the branches of trees in the heat of the day.

In about three months after these eggs have been thus deposited in the earth, the contained insect begins to break its shell, and a small grub or maggot crawls forth, and feeds upon the roots of whatever vegetable it happens to be nearest. All substances, of this kind, seem equally grateful; yet it is probable the mother insect has a choice among what kind of vegetables she shall deposit her young. In this manner these voracious creatures continue in the worm state for more than three years, devouring the roots of every plant they approach, and making their way under ground in quest of food with great dispatch and facility. At length they grow to above the size of a walnut, being a great thick white maggot with a red head, which is seen most frequently in new turned earth, and which is so eagerly sought after by birds of every species. When largest, they are found an inch and a half long, of a whitish yellow colour; with a body consisting of twelve segments or joints, on each side of which there are nine breathing holes, and three red feet. The head is larger in proportion to the body, of a reddish colour, with a pincer before, and a semicircular lip, with which it cuts the roots of plants, and sucks out their moisture. As this insect lives entirely under ground, it has no occasion for eyes, and accordingly it is found to have none; but is furnished with two feelers, which, like the crutch of a blind man, serve to direct its motions. Such is the form of this animal, that lives for years in the worm state under ground, still voracious, and every year changing its skin.

It is not till the end of the fourth year that this extraordinary insect prepares to emerge from its subterraneous abode, and even this is not effected but by a tedious preparation. About the latter end of autumn, the grub begins to perceive the approaches of its transformation: it then buries itself deeper and deeper in the earth, sometimes six feet beneath the surface; and there forms itself a capacious apartment, the walls of which it renders very smooth and shining by the excretions of its body. Its abode being thus formed, it begins soon after to shorten itself, to swell, and to burst its last skin in order to assume the form of a chrysalis. This, in the beginning, appears of a yellowish colour, which heightens by degrees, till at last it is seen nearly red. Its exterior form plainly discovers all the vestiges of the future winged insect, all the fore parts being distinctly seen; while, behind, the animal seems as if wrapped in swaddling clothes.

The young may-bug continues in this state for about three months longer; and it is not till the beginning of January that the aurelia divests itself of all its impediments, and becomes a winged insect completely formed. Yet still the animal is far from attaining its natural strength, health, and appetite. It undergoes a kind of infant imbecility; and unlike most other insects, that the instant they become flies are arrived at their state of full perfection, the may-bug continues feeble and sickly. Its colour is much brighter than in the perfect animal; all its parts are soft; and its voracious nature seems for a while to have entirely forsaken it. As the animal is very often found in this state, it is supposed, by those unacquainted with its real history, that the old ones, of the former season, have buried themselves for the winter, in order to revisit the sun the ensuing summer. But the fact is, the old one never survives the season; but dies, like all the other winged tribe of insects, from the severity of cold in winter.

About the latter end of May, these insects, after having lived for four years under ground, burst from the earth when the first mild evening invites them abroad. They are at that time seen rising from their long imprisonment, from living only upon roots, and imbibing only the moisture of the earth, to visit the mildness of the summer air, to choose the sweetest vegetables for their banquet, and to drink the dew of the evening. Wherever an attentive observer then walks abroad, he will see them bursting up before him in his pathway, like ghosts on a theatre. He will see every part of the earth, that had its surface beaten into hardness, perforated by their egression. When the season is favourable for them, they are seen by myriads buzzing along, hitting against every object that intercepts their flight. The mid-day sun, however, seems too powerful for their constitutions: they then lurk under the leaves and branches of some shady tree; but the willow seems particularly their most favourite food; there they lurk in clusters, and seldom quit

Scarabæus. quit the tree till they have devoured all its verdure. In those seasons which are favourable to their propagation, they are seen in an evening as thick as flakes of snow, and hitting against every object with a sort of capricious blindness. Their duration, however, is but short, as they never survive the season. They begin to join shortly after they have been let loose from their prison; and when the female is impregnated, she cautiously bores a hole in the ground, with an instrument fitted for that purpose with which she is furnished at the tail; and there deposits her eggs, generally to the number of threescore. If the season and the soil be adapted to their propagation, these soon multiply as already described, and go through the various stages of their contemptible existence. This insect, however, in its worm state, though prejudicial to man, makes one of the chief repasts of the feathered tribe, and is generally the first nourishment with which they supply their young. Hogs will root up the land for them, and at first eat them greedily; but seldom meddle with them a second time. Rooks are particularly fond of these worms, and devour them in great numbers. The inhabitants of the county of Norfolk, some time since, went into the practice of destroying their rookeries; but in proportion as they destroyed one plague, they were pestered with a greater; and these insects multiplied in such an amazing abundance, as to destroy not only the verdure of the fields, but even the roots of vegetables not yet shot forth. One farm in particular was so injured by them in the year 1751, that the occupier was not able to pay his rent; and the landlord was not only content to lose his income for that year, but also gave money for the support of the farmer and his family. In Ireland they suffered so much by these insects, that they came to a resolution of setting fire to a wood, of some extent, to prevent their mischievous propagation.

"Neither the severest frosts in our climate (says Mr Rack), nor even keeping them in water, will kill them. I have kept some in water near a week; they appeared motionless; but on exposing them to the sun and air a few hours, they recovered, and were as lively as ever. Hence it is evident they can live without air. On examining them with a microscope, I could never discover any organs for respiration, or perceive any pulsation. When numerous, they are not destroyed without great difficulty; the best method is, to plough up the land in thin furrows, and employ children to pick them up in baskets; and then strew salt and quick lime, and harrow in. About 30 years since I remember many farmers crops in Norfolk were almost ruined by them in their grub-state; and in the next season, when they took wing, the trees and hedges in many parishes were stripped bare of their leaves as in winter. At first the people used to brush them down with poles, and then sweep them up and burn them. One farmer made oath that he gathered 80 bushels; but their number seemed not much lessened, except just in his own fields."

Rack Phil. Trans., vol. i. 205.

The scarabæus carnifex, which the Americans call the *tumble-dung*, particularly demands our attention. It is all over of a dusky black, rounder than those animals are generally found to be, and so strong, though not much larger than the common black beetle, that if one of them be put under a brass candlestick, it will cause it to move backwards and forwards, as if it were by an invisible hand, to the admiration of those who are not accustomed to the sight: but this strength is given for much more useful purposes than those of exciting human curiosity; for there is no creature more [illegible] ous, either in seeking food for, or providing a proper retreat for its young. They are [illegible] to discover subsidence by their excellent [illegible] directs them in flights to excrements just [illegible] man or beasts, on which they instantly drop, [illegible] unanimously to work in forming round balls of [illegible] thereof, in the middle of which they lay an egg. These pellets, in September, they convey three feet deep [illegible] the earth, where they lie till the approach of spring, when the eggs are hatched and burst their nests, and the insects find their way out of the earth. They assist each other with indefatigable industry in rolling these globular pellets to the place where they are to be buried. This they are to perform with the tail foremost, by raising up their hinder part, and thrusting along the ball with their hind-feet. They are always accompanied with other beetles of a larger size, and of a more elegant structure and colour. The breast of this is covered with a shield of a crimson colour, and shining like metal; the head is of the like colour, mixed with green; and on the crown of the head stands a shining black horn, bending backwards. These are called the *kings of the beetles*; but for what reason is uncertain, since they partake of the same dirty drudgery with the rest.

The *elephant-beetle* is the largest of this kind hitherto known; and is found in South America, particularly in Guinea and Surinam, as well as about the river Oroonoko. It is of a black colour; and the whole body is covered with a very hard shell, full as thick and as strong as that of a small crab. Its length, from the hinder part to the eyes, is almost four inches; and from the same part to the end of the proboscis or trunk, four inches and three quarters. The transverse diameter of the body is two inches and a quarter; and the breadth of each elytron, or case for the wings, is an inch and three-tenths. The antennæ or feelers are quite hairy, for which reason the proboscis or trunk is moveable at its insertion into the head, and seems to supply the place of feelers; the horns are eight-tenths of an inch long, and terminate in points. The proboscis is an inch and a quarter long, and turns upwards; making a crooked line, terminating in two horns, each of which is near a quarter of an inch long; but they are not perforated at the end like the proboscis of other insects. About four-tenths of an inch above the head, or that side next the body, is a prominence or small horn; which, if the rest of the trunk were away, would cause this part to resemble the horn of a rhinoceros. There is indeed a beetle so called; but then the horns or trunk has to fork at the end, though the lower horn resembles this. The feet are all forked at the end, but not like lobsters claws. See Plate CCCCXLIV.

SCARBOROUGH, a town of the North Riding of Yorkshire, seated on a steep rock, near which are such craggy cliffs that it is almost inaccessible on every side. On the top of this rock is a large green [illegible], with two wells of fresh water springing out of the rock. It has of late been greatly frequented on account of its mineral waters called the *Scarborough-spa*, on which account it is much mended in the number and beauty of the buildings. The spring was under the cliff, [illegible] which

Scarborough, Scardona.

which fell down in 1737, and the water was loſt; but in clearing away the ruins in order to rebuild the wharf, it was recovered, to the great joy of the town. The waters of Scarborough are chalybeate and purging. The two wells are both impregnated with the ſame principles, in different proportions; though the purging well is the moſt celebrated, and the water of this is uſually called the *Scarborough water*. When theſe waters are poured out of one glaſs into another, they throw up a number of air bubbles; and if they are ſhaken for ſome time in a phial cloſe ſtopped, and the phial be ſuddenly opened before the commotion ceaſes, they diſplode an elaſtic vapour, with an audible noiſe, which ſhows that they abound in fixed air. At the fountain they have a briſk, pungent, chalybeate taſte; but the purging water taſtes bitteriſh, which is not uſually the caſe with the chalybeate one. They loſe their chalybeate virtues by expoſure and by keeping; but the purging water the ſooneſt. They both putrefy by keeping; but in time recover their ſweetneſs. Four or five half pints of the purging water drank within an hour, give two or three eaſy motions, and raiſe the ſpirits. The like quantity of the chalybeate purges leſs, but exhilarates more, and paſſes off chiefly by urine. Theſe waters have been found beneficial in hectic fevers, weakneſſes of the ſtomach, and indigeſtion; in relaxations of the ſyſtem; in nervous, hyſteric, and hypochondriacal diſorders; in the green ſickneſs, ſcurvy, rheumatiſm, and aſthmatic complaints; in gleets, the fluor albus, and other preternatural evacuations; and in habitual coſtiveneſs. Here are aſſemblies and balls in the ſame manner as at Tunbridge. It is a place of ſome trade, has a very good harbour, and ſends two members to parliament. E. Long. 54. 18. N. Lat. 0 3.

SCARDONA, a ſea port town of Dalmatia, ſeated on the eaſtern banks of the river Cherca, with a biſhop's ſee. It has been taken and retaken ſeveral times by the Turks and Venetians; and theſe laſt ruined the fortifications and its principal buildings in 1537; but they have been ſince put in a ſtate of defence.

Travels into Dalmatia.

"No veſtiges (ſays Fortis) now remain viſible of that ancient city, where the ſtates of Liburnia held their aſſembly in the times of the Romans. I however tranſcribed theſe two beautiful inſcriptions, which were diſcovered ſome years ago, and are preſerved in the houſe of the reverend Canon Mercati. It is to be hoped, that, as the population of Scardona continues increaſing, new lands will be broken up, and conſequently more frequent diſcoveries made of the precious monuments of antiquity. And it is to be wiſhed, that the few men of letters, who have a ſhare in the regulation of this reviving city, may beſtow ſome particular attention on that article, ſo that the honourable memorials of their ancient and illuſtrious country, which once held ſo eminent a rank among the Liburnian cities, may not be loſt, nor carried away. It is almoſt a ſhame, that only ſix legible inſcriptions actually exiſt at Scardona; and that all the others, ſince many more certainly muſt have been dug up there, are either miſerably broken, or loſt, or tranſported to Italy, where they loſe the greateſt part of their merit. Roman coins are very frequently found about Scardona, and ſeveral valuable ones were ſhown to me by that hoſpitable prelate Monſignor Previſani, biſhop and father of the riſing ſettlement. One of the principal gentlemen of the place was ſo kind as to give me ſeveral ſepulchral lamps, which are marked by the name of *Fortis*, and by the elegant form of the letters appear to be of the beſt times. The repeated devaſtations to which Scardona has been expoſed, have left it no traces of grandeur. It is now, however, beginning to riſe again, and many merchants of Servia and Boſnia have ſettled there, on account of the convenient ſituation for trade with the upper provinces of Turkey. But the city has no fortifications, notwithſtanding the aſſertion of P. Farlati to the contrary." E. Long. 17. 25. N. Lat. 43 55.

Scarification || Scarron.

SCARIFICATION, in ſurgery, the operation of making ſeveral inciſions in the ſkin by means of lances or other inſtruments, particularly the cupping inſtrument. See SURGERY.

SCARLET, a beautiful bright red colour.

In painting in water-colours, minium mixed with a little vermilion produces a good ſcarlet: but if a flower in a print is to be painted a ſcarlet colour, the lights as well as the ſhades ſhould be covered with minium, and the ſhaded parts finiſhed with carmine, which will produce an admirable ſcarlet.

SCARLET-Fever. See MEDICINE, n 230.

SCARP, in fortification, is the interior talus or ſlope of the ditch next the place, at the foot of the rampart.

SCARP, in heraldry, the ſcarf which military commanders wear for ornament. It is borne ſomewhat like a battoon ſiniſter, but is broader than it, and is continued out to the edges of the field, whereas the battoon is cut off at each end.

SCARPANTO, an iſland of the Archipelago, and one of the Sporades, lying to the ſouth-weſt of the iſle of Rhodes, and to the north-eaſt of that of Candia. It is about 22 miles in length and 9 in breadth; and there are ſeveral high mountains. It abounds in cattle and game; and there are mines of iron, quarries of marble, with ſeveral good harbours. The Turks are maſters of it, but the inhabitants are Greeks.

SCARPE, a river of the Netherlands, which has its ſource near Aubigny in Artois, where it waſhes Arras and Douay; after which it runs on the confines of Flanders and Hainault, paſſing by St Amand, and a little after falls into the Scheldt.

SCARRON (Paul), a famous burleſque writer, was the ſon of a counſellor in parliament, and was born at Paris about the end of the year 1610, or in the beginning of the ſucceeding year. His father marrying a ſecond time, he was compelled to aſſume the eccleſiaſtical profeſſion. At the age of 24 he viſited Italy, where he freely indulged in licentious pleaſures. After his return to Paris he perſiſted in a life of diſſipation till a long and painful diſeaſe convinced him that his conſtitution was almoſt worn out. At length when engaged in a party of pleaſure at the age of 27, he loſt *the uſe of thoſe legs which danced ſo gracefully, and of thoſe hands which could paint and play on the lute with ſo much elegance.* In the year 1638 he was attending the carnival at Mens, of which he was a canon. Having dreſſed himſelf one day as a ſavage, his ſingular appearance excited the curioſity of the children of the town. They followed him in multitudes, and he was obliged to take ſhelter in a marſh. This wet and cold ſituation produced a numbneſs which totally deprived him of the uſe of his limbs; but notwithſtanding this misfortune he continued gay and cheerful. He took up his reſidence at Paris,

Paris, and by his pleasant humour soon attracted to his house all the men of wit about the city. The loss of his health was followed by the loss of his fortune. On the death of his father he entered into a process with his mother-in law. He pleaded the cause in a ludicrous manner, though his whole fortune depended on the decision. He accordingly lost the cause. Mademoiselle de Hautefort, compassionating his misfortunes, procured for him an audience of the queen. The poet requested to have the title of *Valetudinarian* to her majesty. The queen smiled, and Scarron considered the smile as the commission to his new office. He therefore assumed the title of *Scarron, by the grace of God, unworthy valetudinarian to the queen.*

Cardinal Mazarine gave him a pension of 500 crowns; but that minister having received disdainfully the dedication of his *Typhon*, the poet immediately wrote a *Mazarinade*, and the pension was withdrawn. He then attached himself to the prince of Condé, and celebrated his victories. He at length formed the extraordinary resolution of marrying, and was accordingly, in 1651, married to Mademoiselle d'Aubigné (afterwards the famous Madam de Maintenon), who was then only 16 years of age. "At that time (says Voltaire) it was considered as a great acquisition for her to gain for a husband a man who was disfigured by nature, impotent, and very little enriched by fortune." When Scarron was questioned about the contract of marriage, he said he acknowledged to the bride two large invincible eyes, a very beautiful shape, two fine hands, and a large portion of wit. The notary demanded what dowry he would give her? Immediately replied Scarron, "The names of the wives of kings die with them, but the name of Scarron's wife shall live for ever." She restrained by her modesty his indecent buffooneries, and the good company which had formerly resorted to his house were not less frequent in their visits. Scarron now became a new man. He became more decent in his manners and conversation: and his gaiety, when tempered with moderation, was still more agreeable. But, in the mean time, he lived with so little economy, that his income was soon reduced to a small annuity and his marquisate of Quinet. By the marquisate of Quinet, he meant the revenue he derived from his publications, which were printed by one Quinet. He was accustomed to talk to his superiors with great freedom in his jocular style. In the dedication to his *Don Japhet d'Armenie*, he thus addresses the king. "I shall endeavour to persuade your majesty, that you would do yourself no injury were you to do me a small favour; for in that case I should become more gay: if I should become more gay, I should write sprightly comedies: and if I should write sprightly comedies, your majesty would be amused, and thus your money would not be lost. All this appears so evident, that I should certainly be convinced of it if I were as great a king as I am now a poor unfortunate man."

Though Scarron wrote comedies, he had neither time nor patience to study the rules and models of dramatic poetry. Aristotle and Horace, Plautus and Terence, would have frightened him; and perhaps he did not know that there was ever such a person as Aristophanes. He saw an open path before him, and he followed it. It was the fashion of the times to pillage the Spanish writers. Scarron was acquainted with that language, and he found it easier to use the materials which were already prepared, than to rack his brain in inventing a subject; a restraint to which a genius like his could not easily submit. As he borrowed liberally from the Spanish writers, a dramatic piece did not cost him much labour. His labour consisted not in making his comic characters talk humorously, but in keeping up serious characters; for the serious was a foreign language to him. The great success of his *Jodelet Maître* was a vast allurement to him. The comedians who acted it eagerly requested more of his productions. They were written without much toil, and they procured him large sums. They served to amuse him. If it be necessary to give more reasons for Scarron's readiness to engage in these works, abundance may be had. He dedicated his books to his sister's greyhound bitch; and when she failed him, he dedicated them to a certain Monseigneur, whom he praised higher, but did not much esteem. When the office of historiographer became vacant, he solicited for it without success. At length Fouquet gave him a pension of 1600 livres. Christina queen of Sweden having come to Paris, was anxious to see Scarron. "I permit you (said she to Scarron) to fall in love with me. The queen of France has made you her valetudinarian, and I create you my *Roland*." Scarron did not long enjoy that title: he was seized with so violent a hiccough, that every person thought he would have expired. "If I recover (he said), I will make a fine satire on the hiccough." His gaiety did not forsake him to the last. Within a few minutes of his death, when his domestics were shedding tears about him, "My good friends (said he), I shall never make you weep so much for me as I have made you laugh." Just before expiring, he said, "I could never believe before that it is so easy to laugh at death." He died on the 14th of October 1660, in the 51st year of his age.

His works have been collected and published by Bruzen de la Martiniere, in 10 vols 12mo, 1737. There are, 1. The Eneid travestied, in 8 books. It was afterwards continued by Moreau de Brasey. 2 Typhon, or the Gigantomachia. 3. Many comedies; as, Jodelet, or the Master Valet; Jodelet cuffed; Don Japhet d'Armenie; The Ridiculous Heir; Every Man his own Guardian; The Foolish Marquis; The Scholar of Salamanca; The False Appearance; The Prince Corsaire, a tragi-comedy. Besides these, he wrote other pieces in verse. 4. His Comic Romance in prose, which is the only one of his works that deserves attention. It is written with much purity and gaiety, and has contributed not a little to the improvement of the French language. Scarron had great pleasure in reading his works to his friends as he composed them: he called it trying his works. Segrais and another of his friends coming to him one day, "Take a chair (says Scarron to them) and sit down, that I may examine my Comic Romance." When he observed the company laugh, "Very well (said he), my book will be well received since it makes persons of such delicate taste laugh." Nor was he deceived. His Romance had a prodigious run. It was the only one of his works that Boileau could submit to read. 5. Spanish Novels translated into French. 6. A volume of Letters. 7. Poems; consisting of Songs, Epistles, Stanzas, Odes, and Epigrams. The whole collection abounds with sprightliness and gaiety. Scarron can

cur raiſe a laugh in the moſt ſerious ſubjects; but his ſallies are rather thoſe of a buffoon than the effuſions of ingenuity and taſte. He is continually falling into the mean and the obſcene. If we ſhould make any exception in favour of ſome of his comedies, of ſome paſſages in his Eneid traveſtied, and his Comic Romance, we muſt acknowledge that all the reſt of his works are only fit to be read by footmen and buffoons. It has been ſaid that he was the moſt eminent man in his age for burleſque. This might make him an agreeable companion to thoſe who choſe to laugh away their time; but as he has left nothing that can inſtruct poſterity, he has but little title to poſthumous fame.

SCENE, in its primary ſenſe, denoted a theatre, or the place where dramatic pieces and other public ſhows were exhibited; for it does not appear that the ancient poets were at all acquainted with the modern way of changing the ſcenes in the different parts of the play, in order to raiſe the idea of the perſons repreſented by the actors being in different places.

The original ſcene for acting of plays was as ſimple as the repreſentations themſelves: it conſiſted only of a plain plot of ground proper for the occaſion, which was in ſome degree ſhaded by the neighbouring trees, whoſe branches were made to meet together, and their vacancies ſupplied with boards, ſticks, and the like; and to complete the ſhelter, theſe were ſometimes covered with ſkins, and ſometimes with only the branches of other trees newly cut down, and full of leaves. Afterwards more artificial ſcenes, or ſcenical repreſentations, were introduced, and paintings uſed inſtead of the objects themſelves. Scenes were then of three ſorts; tragic, comic, and ſatyric. The tragic ſcene repreſented ſtately magnificent edifices, with decorations of pillars, ſtatues, and other things ſuitable to the palaces of kings: the comic exhibited private houſes with balconies and windows, in imitation of common buildings: and the ſatyric was the repreſentation of groves, mountains, dens, and other rural appearances; and theſe decorations either turned on pivots, or ſlid along grooves, as thoſe in our theatres.

To keep cloſe to nature and probability, the ſcene ſhould never be ſhifted from place to place in the courſe of the play: the ancients were pretty ſevere in this reſpect, particularly Terence, in ſome of whoſe plays the ſcene never ſhifts at all, but the whole is tranſacted at the door of ſome old man's houſe, whither with inimitable art he occaſionally brings the actors. The French are pretty ſtrict with reſpect to this rule; but the Engliſh pay very little regard to it.

Scene is alſo a part or diviſion of a dramatic poem. Thus plays are divided into acts, and acts are again ſubdivided into ſcenes; in which ſenſe the ſcene is properly the perſons preſent at or concerned in the action on the ſtage at ſuch a time: whenever, therefore, a new actor appears, or an old one diſappears, the action is changed into other hands; and therefore a new ſcene then commences.

It is one of the laws of the ſtage, that the ſcenes be well connected; that is, that one ſucceed another in ſuch a manner as that the ſtage be never quite empty till the end of the act. See POETRY.

SCENOGRAPHY, (from the Greek, σκηνη *ſcene*, and γραφη *deſcription*), in perſpective, a repreſentation of a body on a perſpective plane; or a deſcription thereof in all its dimenſions, ſuch as it appears to the eye. See PERSPECTIVE.

SCEPTIC, σκεπτικος, from σκεπτομαι, "I conſider, look about, or deliberate," properly ſignifies *conſiderative* and *inquiſitive*, or one who is always weighing reaſons on one ſide, and the other without ever deciding between them. It is chiefly applied to an ancient ſect of philoſophers founded by Pyrrho (ſee PYRRHO), who, according to Laertius, had various other denominations: From their maſter they were called *Pyrrhonians*; from the diſtinguiſhing tenets or characteriſtic of their philoſophy they derived the name of *Aporetici*, from απορεω, "to doubt;" from their ſuſpenſion and heſitation they were called *ephectici*, from εφεχω, "to ſtay or keep back;" and laſtly, they were called *zetetici* or *ſeekers*, from their never getting beyond the ſearch of truth.

That the ſceptical philoſophy is abſurd, can admit of no diſpute in the preſent age; and that many of the followers of Pyrrho carried it to the moſt ridiculous height, is no leſs true. But we cannot believe that he himſelf was ſo extravagantly ſceptical as has ſometimes been aſſerted, when we reflect on the particulars of his life, which are ſtill preſerved, and the reſpectful manner in which we find him mentioned by his contemporaries and writers of the firſt name who flouriſhed ſoon after him. The truth, as far as at this diſtance of time it can be diſcovered, ſeems to be, that he learned from Democritus to deny the real exiſtence of all qualities in bodies, except thoſe which are eſſential to primary atoms, and that he referred every thing elſe to the perceptions of the mind produced by external objects, in other words, to appearance and opinion. All knowledge of courſe appeared to him to depend on the fallacious report of the ſenſes, and conſequently to be uncertain; and in this notion he was confirmed by the general ſpirit of the Eleatic ſchool in which he was educated. He was further confirmed in his ſcepticiſm by the ſubtilties of the Dialectic ſchools, in which he had been inſtructed by the ſon of Stilpo; chooſing to overturn the cavils of ſophiſtry by recurring to the doctrine of univerſal uncertainty, and thus breaking the knot which he could not unlooſe. For being naturally and habitually inclined to conſider immoveable tranquillity as the great end of all philoſophy, he was eaſily led to deſpiſe the diſſenſions of the dogmatiſts, and to infer from their endleſs diſputes, the uncertainty of the queſtions on which they debated; controverſy, as it has often happened to others, becoming alſo with reſpect to him the parent of ſcepticiſm.

Pyrrho's doctrines, however new and extraordinary, were not totally diſregarded. He was attended by ſeveral ſcholars, and ſucceeded by ſeveral followers, who preſerved the memory of his notions. The moſt eminent of his followers was Timon (ſee TIMON), in whom the public ſucceſſion of profeſſors in the Pyrrhonic ſchool terminated. In the time of Cicero it was almoſt extinct, having ſuffered much from the jealouſy of the dogmatiſts, and from a natural averſion in the human mind to acknowledge total ignorance, or to be left in abſolute darkneſs. The diſciples of Timon, however, ſtill continued to profeſs ſcepticiſm, and their notions were embraced privately at leaſt by many others. The ſchool itſelf was afterwards revived by Ptolæmeus a Cyrenian, and was continued by Æneſidemus a contemporary of Cicero, who wrote a treatiſe on the principles of the Pyrrhonic philoſophy, the heads of which are preſerved by Photius.

Photius. From this time it was continued through a series of preceptors of little note to Sextus Empiricus, who also gave a summary of the sceptical doctrine.

A system of philosophy thus founded on doubt, and clouded with uncertainty, could neither teach tenets of any importance, nor prescribe a certain rule of conduct; and accordingly we find that the followers of scepticism were guided entirely by chance. As they could form no certain judgment respecting good and evil, they accidentally learned the folly of eagerly pursuing any apparent good, or of avoiding any apparent evil; and their minds of course settled into a state of undisturbed tranquillity, the grand postulatum of their system.

In the schools of the sceptics we find ten distinct topics of argument urged in support of the doctrine of uncertainty, with this precaution, however, that nothing could be positively asserted either concerning their number or their force. These arguments chiefly respect objects of sense: they place all knowledge in appearance; and, as the same things appear very different to different people, it is impossible to say which appearance most truly expresses their real nature. They likewise say, that our judgment is liable to uncertainty from the circumstance of frequent or rare occurrence, and that mankind are continually led into different conceptions concerning the same thing by means of custom, law, fabulous tales, and established opinions. On all these accounts they think every human judgment is liable to uncertainty; and concerning any thing they can only assert, that it seems to be, not that it is what it seems.

This doubtful reasoning, if reasoning it may be called, the sceptics extended to all the sciences in which they discovered nothing true, or which could be absolutely asserted. In all nature, in physics, morals, and theology, they found contradictory opinions, and inexplicable or incomprehensible phenomena. In physics, the appearances they thought might be deceitful; and respecting the nature of God and the duties of morality, men were, in their opinion, equally ignorant and uncertain. To overturn the sophistical arguments of these sceptical reasoners would be no difficult matter, if their reasoning were worthy of confutation. Indeed, their great principle is sufficiently, though shortly, refuted by Plato, in these words. "When you say all things are incomprehensible (says he), do you comprehend or conceive that they are thus incomprehensible, or do you not? If you do, then something is comprehensible; if you do not, there is no reason we should believe you, since you do not comprehend your own assertion."

But scepticism has not been confined entirely to the ancients and to the followers of Pyrrho. Numerous sceptics have arisen also in modern times, varying in their principles, manners, and character, as chance, prejudice, vanity, weakness, or indolence, prompted them. The great object, however, which they seem to have in view, is to overturn, or at least to weaken, the evidence of analogy, experience, and testimony; though some of them have even attempted to show, that the axioms of geometry are uncertain, and its demonstrations inconclusive. This last attempt has not indeed been often made; but the chief aim of Mr Hume's philosophical writings is to introduce doubts into every branch of *physics*, *metaphysics*, *history*, *ethics*, and *theology*. It is needless to give a specimen of his reasonings in support of modern scepticism. The most important of them have been noticed elsewhere (see MIRACLE, METAPHYSICS, and PHILOSOPHY, n° 41.); and such of our readers as have any relish for speculations of that nature can be no strangers to his Essays, or to the able confutations of them by the Doctors Reid, Campbell, Gregory, and Beattie, who have likewise exposed the weakness of the sceptical reasonings of Des Cartes, Malbranche, and other philosophers of great fame in the same school.

SCEPTICISM, the doctrines and opinions of the sceptics. See the preceding article.

SCEPTRE, a kind of royal staff, or batoon, borne on solemn occasions by kings, as a badge of their command and authority. Nicod derives the word from the Greek σκηπτρον, which he says originally signified "a javelin," which the ancient kings usually bore as a badge of their authority; that instrument being in very great veneration among the heathens. But σκηπτρον does not properly signify a javelin, but *a staff to rest upon*, from σκηπτω, *innitor*, "I lean upon." Accordingly, in the simplicity of the earlier ages of the world, the sceptres of kings were no other than long walking-staves: and Ovid, in speaking of Jupiter, describes him as resting on his sceptre (Met. i. v. 178.) The sceptre is an ensign of royalty of greater antiquity than the crown. The Greek tragic and other poets put sceptres in the hands of the most ancient kings they ever introduce. Justin observes, that the sceptre, in its original, was an *hasta*, or spear. He adds, that, in the most remote antiquity, men adored the *hastæ* or sceptres as immortal gods; and that it was upon this account, that, even in his time, they still furnished the gods with sceptres.—Neptune's sceptre is his trident. Tarquin the Elder was the first who assumed the sceptre among the Romans. Le Gendre tells us, that, in the first race of the French kings, the sceptre was a golden rod, almost always of the same height with the king who bore it, and crooked at one end like a crozier. Frequently instead of a sceptre, kings are seen on medals with a palm in their hand. See REGALIA.

SCHÆFFERA, in botany: A genus of the tetrandria order, belonging to the diœcia class of plants; and in the natural method ranking with those that are doubtful. The calyx is quadripetalous; the corolla is quadripetalous, quinquepetalous, and often wanting; the fruit is a bilocular berry with one seed. Of this there are two species, both natives of Jamaica; and grow in the lowlands near the sea: viz. 1. The *Completa*. 2. *Lateriflora*.

SCHAFFHAUSEN, a large, handsome, and strong town of Swisserland, capital of a canton of the same name, with a castle in the form of a citadel. It is well built, with fine large streets, and adorned with several fountains; and the greatest part of the houses are painted on the outside. It is well fortified, and the cathedral is the largest church in Swisserland; besides which, the minster, with the monastery adjoining thereto, the arsenal, the town-house, the great clock (which shows the course of the sun and moon with their eclipses), and the stone bridge over the Rhine, are well worth the observation of a traveller. That river is of great consequence to the inhabitants with regard to trade. E. Long. 8. 51. N. Lat. 47. 39.

The Canton of SCHAFFHAUSEN, in Swisserland, is bounded on the north and west by Suabia; on the east by the canton of Zurich, and the bishoprick of Constance;

Schedule, Scheele.

ſtance; and on the ſouth by the ſame, and by Thurgaw. It is 22 miles in length, and 10 in breadth; but produces all the neceſſaries of life, as wine, fiſh, wood, flax, horſes, ſheep, wool, black cattle, and deer. The principal town is of the ſame name.

SCHEDULE, a ſcroll of paper or parchment, annexed to a will, leaſe, or other deed; containing an inventory of goods, or ſome other matter omitted in the body of the deed.—The word is a diminutive of the Latin *ſcheda*, or Greek σχεδη, a leaf or piece of paper.

SCHEELE (Charles-William), was born on the 19th of December 1742, at Stralſund, where his father kept a ſhop. When he was very young, he received the uſual inſtructions of a private ſchool; and was afterwards advanced to an academy. At a very early age he ſhewed a ſtrong deſire to follow the profeſſion of an apothecary, and his father ſuffered him to gratify his inclinations. With Mr Bauch, an apothecary at Gottenburg, he paſſed his apprenticeſhip, which was completed in ſix years. He remained, however, ſome time longer at that place, and it was there that he ſo excellently laid the firſt foundations of his knowledge. Among the various books which he read, that treated of chemical ſubjects, Kunckel's Laboratory ſeems to have been his favourite. He uſed to repeat many of the experiments contained in that work privately in the night, when the reſt of the family had retired to reſt. A friend of Scheele's had remarked the progreſs which he had made in chemiſtry, and had aſked him by what inducements he had been at firſt led to ſtudy a ſcience in which he had gained ſuch knowledge? Scheele returned the following anſwer: "The firſt cauſe, my friend, aroſe from yourſelf. Nearly at the beginning of my apprenticeſhip you adviſed me to read Neuman's Chemiſtry; from the peruſal of which I became eager to make experiments myſelf; and I remember very well how I mixed together, in a conſerve-glaſs, oil of cloves and fuming acid of nitre, which immediately took fire. I ſee alſo ſtill before my eyes an unlucky experiment which I made with pyrophorus. Circumſtances of this kind did but the more inflame my deſire to repeat experiments." After Scheele's departure from Gottenburg, in the year 1765, he obtained a place with Kalſtrom, an apothecary at Malmo. Two years afterwards he went from thence to Stockholm, and managed there the ſhop of Mr Scharenberg. In 1773, he changed this appointment for another at Upſal, under Mr Loock. Here he was fortunately ſituated; as, from his acquaintance with learned men, and from having free acceſs to the Univerſity Laboratory, he had opportunities of increaſing his knowledge. At this place alſo he happily commenced the friendſhip which ſubſiſted between him and Bergman. During his reſidence at this place, his Royal Highneſs Prince Henry of Pruſſia, accompanied by the Duke of Sunderland, viſited Upſal, and choſe this opportunity to ſee the Academical Laboratory. Scheele was accordingly appointed by the Univerſity to exhibit ſome chemical experiments to them. This office he undertook, and ſhewed ſome of the moſt curious proceſſes in chemiſtry. The two Princes aſked him many queſtions, and expreſſed their approbation of the anſwers which he returned to them. The Duke aſked him what countryman he was, and ſeemed to be much pleaſed when Scheele informed him that he was born at Stralſund. At their departure they told the profeſſor, who was preſent, that they ſhould eſteem it a favour if he would permit the young man to have free acceſs to the Laboratory, as often as he choſe, to make experiments.

In the year 1777 Scheele was appointed by the Medical College to be apothecary at Koping. It was at that place that he ſoon ſhewed the world how great a man he was, and that no place or ſituation could confine his abilities. When he was at Stockholm he ſhewed his acuteneſs as a chemiſt, as he diſcovered there the new and wonderful acid contained in the ſparry fluor. It has been confidently aſſerted, that Scheele was the firſt who diſcovered the nature of the aerial acid; and that whilſt he was at Upſal he made many experiments to prove its properties. This circumſtance might probably have furniſhed Bergman with the means of handling this ſubject more fully. At the ſame place he began the ſeries of excellent experiments on that remarkable mineral ſubſtance, manganeſe; from which inveſtigation he was led to make the very valuable and intereſting diſcovery of the dephlogiſticated marine acid. At the ſame time he firſt obſerved the ponderous earth.

At Koping he finiſhed his diſſertation on Air and Fire; a work which the celebrated Bergman moſt warmly recommended in the friendly preface which he wrote for it. The theory which Scheele endeavours to prove in this treatiſe is, that fire conſiſts of pure air and phlogiſton. According to more recent opinions (if inflammable air be phlogiſton), water is compoſed of theſe two principles. Of theſe opinions we may ſay, in the words of Cicero, "*Opiniones tam variæ ſunt, tamque inter ſe diſſidentes, ut alterum profectò fieri poteſt, ut earum nulla, alterum certe non poteſt ut plus una, vera ſit.*" The author's merit in this work, excluſive of the encomiums of Bergman, was ſufficient to obtain the approbation of the public; as the ingenuity diſplayed in handling ſo delicate a ſubject, and the many new and valuable obſervations (A) which are diſperſed through the treatiſe, juſtly entitled the author to that fame which his book procured him. It was ſpread abroad through every country, became ſoon out of print, was reprinted, and tranſlated into many languages. The Engliſh tranſlation is enriched with the notes of that accurate and truly philoſophic genius Richard Kirwan, Eſq.

Scheele now diligently employed himſelf in contributing to the Tranſactions of the Academy at Stockholm. He

(A) Scheele mentions in this work, in a curſory way, the decompoſition of common ſalt by the calx of lead. Mr Turner, a gentleman who happily unites the ſkill of the manufacturer with the knowledge of the philoſophic chemiſt, has alſo all the merit of this diſcovery, as he obſerved the ſame fact, without having been indebted to Scheele's hint on this ſubject. Mr Turner has done more; he has converted this diſcovery to ſome uſe in the arts; he produces mineral alkali for ſale, ariſing from this decompoſition; and from the lead which is united to the marine acid he forms the beautiful pigment called the *patent yellow*.

He first pointed out a new way to prepare the salt of benzoin. In the same year he discovered that arsenic, freed in a particular manner from phlogiston, partakes of all the properties of an acid, and has its peculiar affinities to other substances.

In a Dissertation on Flint, Clay, and Alum, he clearly overturned Beaumé's opinion of the identity of the siliceous and argillaceous earths. He published an Analysis of the Human Calculus. He shewed also a mode of preparing mercurius dulcis in the humid way, and improved the process of making the powder of Algaroth. He analysed the mineral substance called *molybdena*, or flexible black lead. He discovered a beautiful green pigment. He shewed us how to decompose the air of the atmosphere. He discovered that some neutral salts are decomposed by lime and iron. He decomposed plumbago, or the common black lead. He observed, with peculiar ingenuity, an acid in milk, which decomposes acetated alkali; and in his experiments on the sugar of milk, he discovered another acid, different in some respects from the above-mentioned acid and the common acid of sugar. He accomplished the decomposition of tungstein, the component parts of which were before unknown, and found in it a peculiar acid earth united to lime. He published an excellent dissertation on the different sorts of æther. He found out an easy way to preserve vinegar for many years. His investigation of the colouring matter in Prussian blue, the means he employed to separate it, and his discovery that alkali, sal ammoniac, and charcoal, mixed together, will produce it, are strong marks of his penetration and genius. He found out a peculiar sweet matter in expressed oils, after they have been boiled with litharge and water. He shewed how the acid of lemons may be obtained in crystals. He found the white powder in rhubarb, which Model thought to be selenite, and which amounts to one-seventh of the weight of the root, to be calcareous earth, united to the acid of sorrel. This suggested to him the examination of the acid of sorrel. He precipitated acetated lead with it, and decomposed the precipitate thus obtained by the vitriolic acid, and by this process he obtained the common acid of sugar; and by slowly dropping a solution of fixed alkali into a solution of the acid of sugar, he regenerated the acid of sorrel.—From his examination of the acids contained in fruits and berries, he found not one species of acid alone, viz. the acid of lemon, but another also, which he denominated the malaceous acid, from its being found in the greatest quantity in apples.

By the decomposition of Bergman's new metal (siderite) he shewed the truth of Meyer's and Klaproth's conjecture concerning it. He boiled the calx of siderite with alkali of tartar, and precipitated nitrated mercury by the middle salt which he obtained by this operation; the calx of mercury which was precipitated was found to be united to the acid of phosphorus; so that he demonstrates that this calx was phosphorated iron. He found also, that the native Prussian blue contained the same acid. He discovered by the same means, that the perlate acid, as it was called, was not an acid *sui generis*, but the phosphoric united to a small quantity of the mineral alkali. He suggested an improvement in the process for obtaining magnesia from Epsom salt; he advises the adding of an equal weight of common salt to the Epsom salt, so that an equal weight of Glauber's salt may be obtained: but this will not succeed unless in the cold of winter. These are the valuable discoveries of this great philosopher, which are to be found in the Transactions of the Royal Society at Stockholm. Most of his essays have been published in French by Madame Picardet, and Monsr. Morveau of Dijon. Dr Beddoes also has made a very valuable present to his countrymen of an English translation of a greater part of Scheele's dissertations, to which he has added some useful and ingenious notes. The following discoveries of Scheele are not, we believe, published with the rest. He shewed what that substance is, which has been generally called 'the earth of the fluor spar.' It is not produced unless the fluor acid meet with siliceous earth. It appears from Scheele's experiments to be a triple salt, consisting of flint, acid of fluor, and fixed alkali. Scheele proved also, that the fluor acid may be produced without any addition of the vitriolic or any mineral acid: the fluor is melted with fixed alkali, and the fluorated alkali is decomposed by acetated lead. If the precipitate be mixed with charcoal dust, and exposed in a retort to a strong heat, the lead will be revived, and the acid of fluor, which was united to it, will pass into the receiver possessed of all its usual properties. This seems to be an ingenious and unanswerable proof of its existence.

He observed, that no pyrophorus can be made unless an alkali be present; and the reason why it can be prepared from alum and coal is, that the common alum always contains a little alkali, which is added in order to make it chrystallize; for if this be separated from it, no pyrophorus can be procured from it. His last dissertation was his very valuable observations on the acid of the gallnut. Ehrhart, one of Scheele's most intimate friends, asserts, that he was the discoverer of both of the acids of sugar and tartar. We are also indebted to him for that masterpiece of chemical decomposition, the separation of the acid of phosphorus from bones. This appears from a letter which Scheele wrote to Gahn, who has generally had the reputation of this great discovery. This acid, which is so curious in the eye of the chemist, begins to draw the attention of the physician. It was first used in medicine, united to the mineral alkali, by the ingenious Dr Pearson. The value of this addition to the materia medica cannot be better evinced than from the increase of the demand for it, and the quantity of it which is now prepared and sold in London.

We may stamp the character of Scheele as a philosopher from his many and important discoveries. What concerns him as a man we are informed of by his friends, who affirm, that his moral character was irreproachable. From his outward appearance, you would not at first sight have judged him to be a man of extraordinary abilities; but there was a quickness in his eye, which, to an accurate observer, would point out the penetration of his mind. He mixed but little with the crowd of common acquaintance; for this he had neither time nor inclination, as, when his profession permitted him, he was for the most part employed in his experimental inquiries. But he had a soul for friendship; nor could even his philosophical pursuits withhold him from truly enjoying the society of those whom he could esteem and love. Before he adopted any opinion, or a particular theory, he considered it with the greatest attention; but when

Scheele || Schemnitz.

when once his ſentiments were fixed, he adhered to them, and defended them with reſolution. Not but that he was ingenuous enough to ſuffer himſelf to be convinced by weighty objections; as he has ſhewn that he was open to conviction.

His chemical apparatus was neither neat nor convenient; his laboratory was ſmall and confined; nor was he particular in regard to the veſſels which he employed in his experiments, as often the firſt phial which came to hand was placed in his ſand-heat: ſo that we may juſtly wonder how ſuch diſcoveries, and ſuch elegant experiments, could have been made under ſuch unfavourable circumſtances. He underſtood none of the modern languages except the German and Swediſh; ſo that he had not the advantage of being benefited by the early intelligence of diſcoveries made by foreigners, but was forced to wait till the intelligence was conveyed to him in the ſlow and uncertain channel of tranſlation. The important ſervices which Scheele did to natural philoſophy entitled him to univerſal reputation; and he obtained it: his name was well known by all Europe, and he was member of ſeveral learned academies and philoſophical ſocieties.

It was often wiſhed that he would quit his retirement at Koping, and move in a larger ſphere. It was ſuggeſted to him, that a place might be procured in England, which might afford him a good income and more leiſure; and, indeed, latterly an offer was made to him of an annuity of 300l. if he would ſettle in this country. But death, alas! put an end to this project. For half a year before this melancholy event, his health had been declining, and he himſelf was ſenſible that he would not recover. On the 19th of May 1786, he was confined to his bed; on the 21ſt he bequeathed all of which he was poſſeſſed to his wife (who was the widow of his predeceſſor at Koping, and whom he had lately married); and on the ſame day he departed this life. So the world loſt, in leſs than two years, Bergman and Scheele, of whom Sweden may juſtly boaſt; two philoſophers, who were beloved and lamented by all their contemporaries, and whoſe memory poſterity will never ceaſe moſt gratefully to revere.

SCHEINER (Chriſtopher), a German mathematician, aſtronomer, and Jeſuit, eminent for being the firſt who diſcovered ſpots on the ſun, was born at Schwaben in the territory of Middleheim in 1575. He firſt diſcovered ſpots on the ſun's diſk in 1611, and made obſervations on theſe phenomena at Rome, until at length reducing them to order, he publiſhed them in one vol. folio in 1630. He wrote alſo ſome ſmaller things relating to mathematics and philoſophy; and died in 1690.

SCHELD, a river which riſes on the confines of Picardy, and runs north-eaſt by Cambray, Valenciennes, Tournay, Oudenarde, &c. and receiving the Lis at Ghent, runs eaſt by Dendermond, and then north to Antwerp: below which city it divides into two branches, one called *the Weſter-Scheld*, which ſeparates Flanders from Zealand, and diſcharges itſelf into the ſea near Fluſhing; and the other called *the Oſter-Scheld*, which runs by Bergen op-zoom, and afterwards between the iſlands Beveland and Schowen, and a little below falls into the ſea.

SCHEMNITZ, a town of Upper Hungary, with three caſtles. It is famous for mines of ſilver and other metals, as alſo for hot baths. Near it is a rock of a ſhining blue colour mixed with green, and ſome ſpots of yellow. E. Long. 19. 0. N. Lat. 48. 40.

Scherardia || Schiſm.

SCHERARDIA, in botany; a genus of the monogynia order, belonging to the tetrandria claſs of plants. The corolla is monopetalous and funnel-ſhaped; there are two three-toothed ſeeds.

SCHETLAND. See SHETLAND.

SCHEUCHZERIA, in botany: A genus of the trigynia order, belonging to the hexandria claſs of plants; and in the natural method ranking under the fifth order, *Tripelatoideæ*. The calyx is ſexpartite; there is no corolla, nor are there any ſtyles; there are three inflated and monoſpermous capſules.

SCHIECHS, or SCHECH, among the Arabs, is a name applied to their nobles. "Among the Bedouins," ſays Niebuhr, "it belongs to every noble, whether of the higheſt or the loweſt order. Their nobles are very numerous, and compoſe in a manner the whole nation; the plebeians are invariably actuated and guided by the ſchiechs, who ſuperintend and direct in every tranſaction. The ſchiechs, and their ſubjects, are born to the life of ſhepherds and ſoldiers. The greater tribes rear many camels, which they either ſell to their neighbours, or employ them in the carriage of goods, or in military expeditions. The petty tribes keep flocks of ſheep. Among thoſe tribes which apply to agriculture, the ſchiechs live always in tents, and leave the culture of their grounds to their ſubjects, whoſe dwellings are wretched huts. Schiechs always ride on horſes or dromedaries, inſpecting the conduct of their ſubjects, viſiting their friends, or hunting. Traverſing the deſert, where the horizon is wide as on the ocean, they perceive travellers at a diſtance. As travellers are ſeldom to be met with in thoſe wild tracts, they eaſily diſcover ſuch as paſs that way, and are tempted to pillage them when they find their own party the ſtrongeſt."

SCHINUS, in botany: A genus of the decandria order, belonging to the dicœcia claſs of plants; and in the natural method ranking under the 43d order, *Dumoſæ*. The male calyx is quinquefid; the petals five. The female flower is the ſame as in the male; the berry tricoccous.

SCHIRAS, or SCHIRAUZ, a large and famous town of Perſia, capital of Farſiſtan, is three miles in length from eaſt to weſt, but not ſo much in breadth. It is ſeated at the north-weſt end of a ſpacious plain ſurrounded with very high hills, under one of which the town ſtands. The houſes are built of bricks dried in the ſun; the roofs are flat and terraced. There are 15 handſome moſques, tiled with ſtones of a bluiſh green colour, and lined within with black poliſhed marble. There are many large and beautiful gardens, ſurrounded with walls fourteen feet high, and four thick. They contain various kinds of very fine trees, with fruits almoſt of every kind, beſides various beautiful flowers. The wines of Schiras are not only the beſt in Perſia, but, as ſome think, in the whole world. The women are much addicted to gallantry, and Schiras is called *an earthly paradiſe* by ſome. The ruins of the famous Perſepolis are 30 miles to the north-eaſt of this place. E. Long. 56. 0. N. Lat. 29. 36.

SCHISM, (from the Greek, σχισμα, *cliſt*, *fiſſure*), in its general acceptation ſignifies *diviſion* or *ſeparation*; but is chiefly uſed in ſpeaking of ſeparations happening

from diverſity of opinions among people of the ſame religion and faith.

Thus we ſay the *ſchiſm* of the ten tribes of Judah and Benjamin, the *ſchiſm* of the Perſians from the Turks and other Mahometans, &c.

Among eccleſiaſtical authors, the great ſchiſm of the Weſt is that which happened in the times of Clement VII. and Urban VI. which divided the church for 40 or 50 years, and was at length ended by the election of Martin V. at the council of Conſtance.

The Romaniſts number 34 ſchiſms in their church. —They beſtow the name *Engliſh ſchiſm* on the reformation of religion in this kingdom. Thoſe of the church of England apply the term *ſchiſm* to the ſeparation of the nonconformiſts, viz. the preſbyterians, independents, and anabaptiſts, for a further reformation.

SCHISTUS, in mineralogy, a name given to ſeveral different kinds of ſtones, but more eſpecially to ſome of the argillaceous kind; as,

1. The bluiſh purple ſchiſtus, ſchiſtus tegularis, or common roof-ſlate. This is ſo ſoft that it may be ſlightly ſcraped with the nail, and is of a very brittle lamellated texture, of the ſpecific gravity of 2,876. It is fuſible *per ſe* in a ſtrong heat, and runs into a black ſcoria. By a chemical analyſis it is found to conſiſt of 26 parts of argillaceous earth, 46 of ſiliceous earth, 8 of magneſia, 4 of calcareous earth, and 14 of iron. The dark-blue ſlate, or ſchiſtus ſcriptorius, contains more magneſia and leſs iron than the common purple ſchiſtus, and effervesces more briſkly with acids. Its ſpecific gravity is 2,701.

2. The pyritaceous ſchiſtus is of a grey colour, brown, blue, or black; and capable of more or leſs decompoſition by expoſure to the air, according to the quantity of pyritous matter it contains and the ſtate of the iron in it. When this laſt is in a ſemi-phlogiſticated ſtate it is eaſily decompoſed; but very ſlowly, or not at all, if the calx is much dephlogiſticated. The aluminous ſchiſtus belongs to this ſpecies.

3. The bituminous ſchiſtus is generally black, and of a lamellated texture, of various degrees of hardneſs, not giving fire with ſteel, but emitting a ſtrong ſmell when heated, and ſometimes without being heated. M. Magellan mentions a ſpecimen which burns like coal, with a ſtrong ſmell of mineral bitumen, but of a yellowiſh brown, or rather dark aſh-colour, found in Yorkſhire.—This kind of ſchiſtus does not ſhow any white mark when ſcratched like the other ſchiſtus.

SCHMIEDELIA, in botany: A genus of the digynia order, belonging to the octandria claſs of plants. The calyx is diphyllous; the corolla tetrapetalous; the germina pedicellated, and longer than the flower.

SCHOENOBATES (from the Greek, σχοινοβατ, *a rope*; and βαινω, *I walk*), a name which the Greeks gave to their rope-dancers: by the Romans called *funambuli*. See ROPE-DANCER and FUNAMBULUS.

The *ſchœnobates* were ſlaves whoſe maſters made money of them, by entertaining the people with their feats of activity. *Mercurialis de arte gymnaſtica, lib.* III. gives us five figures of *ſchœnobates* engraven after ancient ſtones.

SCHOENUS, in botany: A genus of the monogynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 3d order, *Calamariæ*. The glumes are paleaceous, univalved, and thickſet; there is no corolla, and only one roundiſh ſeed between the glumes.

SCHOLASTIC, ſomething belonging to the ſchools. See SCHOOL.

SCHOLASTIC Divinity, is that part or ſpecies of divinity which clears and diſcuſſes queſtions by reaſon and arguments; in which ſenſe it ſtands, in ſome meaſure, oppoſed to *poſitive divinity*, which is founded on the authority of fathers, councils, &c. The ſchool-divinity is now fallen into contempt; and is ſcarce regarded anywhere but in ſome of the univerſities, where they are ſtill by their charters obliged to teach it.

SCHOLIAST, or COMMENTATOR, a grammarian who writes *ſcholia*, that is, notes, gloſſes, &c. upon ancient authors who have written in the learned languages. See the next article.

SCHOLIUM, a note, annotation, or remark, occaſionally made on ſome paſſage, propoſition, or the like. This term is much uſed in geometry and other parts of mathematics, where, after demonſtrating a propoſition, it is cuſtomary to point out how it might be done ſome other way, or to give ſome advice or precaution in order to prevent miſtakes, or add ſome particular uſe or application thereof.

SCHOMBERG (Frederick-Armand duke of), a diſtinguiſhed officer, ſprung from an illuſtrious family in Germany, and the ſon of count Schomberg by an Engliſh lady, daughter of lord Dudley, was born in 1608. He was initiated into the military life under Frederick-Henry prince of Orange, and afterwards ſerved under his ſon William II. of Orange, who highly eſteemed him. He then repaired to the court of France, where his reputation was ſo well known, that he obtained the government of Gravelines, of Furnes, and the ſurrounding countries. He was reckoned inferior to no general in that kingdom except mareſchal Turenne and the prince of Condé; men of ſuch exalted eminence that it was no diſgrace to acknowledge their ſuperiority. The French court thinking it neceſſary to diminiſh the power of Spain, ſent Schomberg to the aſſiſtance of the Portugueſe, who were engaged in a war with that country reſpecting the ſucceſſion to their throne.—Schomberg's military talents gave a turn to the war in favour of his allies. The court of Spain was obliged to ſolicit for peace in 1668, and to acknowledge the houſe of Braganza as the juſt heirs to the throne of Portugal. For his great ſervices he was created count Mentola in Portugal; and a penſion of 5000 l. was beſtowed upon him, with the reverſion to his heirs.

In 1673 he came over to England to command the army; but the Engliſh at that time being diſguſted with the French nation, Schomberg was ſuſpected of coming over with a deſign to corrupt the army, and bring it under French diſcipline. He therefore found it neceſſary to return to France, which he ſoon left, and went to the Netherlands. In the month of June 1676, he forced the prince of Orange to raiſe the ſiege of Maeſtricht; and it is ſaid he was then raiſed to the rank of mareſchal of France. But the French *Dictionaire Hiſtorique*, whoſe information on a point of this nature ought to be authentic, ſays, that he was inveſted with this honour the ſame year in which he took the fortreſs

Sch m-berg.

fortreſs of Bellegarde from the Spaniards while ſerving in Portugal.

Upon the revocation of the edict of Nantes, when the perſecution commenced againſt the Proteſtants, Schomberg, who was of that perſuaſion, requeſted leave to retire into his own country. This requeſt was refuſed; but he was permitted to take refuge in Portugal, where he had reaſon to expect he would be kindly received on account of paſt ſervices. But the religious zeal of the Portugueſe, though it did not prevent them from accepting aſſiſtance from a heretic when their kingdom was threatened with ſubverſion, could not permit them to give him ſhelter when he came for protection. The inquiſition interfered, and obliged the king to ſend him away. He then went to Holland by the way of England. Having accepted an invitation from the elector of Brandenburg, he was inveſted with the government of Ducal Pruſſia, and appointed commander in chief of the elector's forces. When the prince of Orange failed to England to take poſſeſſion of the crown which his father-in-law James II. had abdicated, Schomberg obtained permiſſion from the elector of Brandenburg to accompany him. He is ſuppoſed to have been the author of an ingenious ſtratagem which the prince employed after his arrival in London to diſcover the ſentiments of the people reſpecting the revolution. The ſtratagem was, to ſpread an alarm over the country that the Iriſh were approaching with fire and ſword. When the prince was eſtabliſhed on the throne of England, Schomberg was appointed commander in chief of the forces and maſter of the ordnance. In April 1689 he was made knight of the garter, and naturalized by act of Parliament; and in May following was created a baron, earl, marquis, and duke of the kingdom of England, by the name and title of baron Teys, earl of Brentford, marquis of Harwich, and duke of Schomberg. The Houſe of Commons voted to him L. 100,000 as a reward for his ſervices. Of this he only received a ſmall part; but after his death a penſion of L. 5000 a-year was beſtowed upon his ſon.

In Auguſt 1689 he was ſent to Ireland to reduce that kingdom to obedience. When he arrived, he found himſelf at the head of an army conſiſting only of 12,000 foot and 2000 horſe, while king James commanded an army three times more numerous. Schomberg thought it dangerous to engage with ſo ſuperior a force, and being diſappointed in his promiſed ſupplies from England, judged it prudent to remain on the defenſive. He therefore poſted himſelf at Dundalk, about five or ſix miles diſtance from James, who was encamped at Ardee. For ſix weeks he remained in this poſition, without attempting to give battle, while from the wetneſs of the ſeaſon he loſt nearly the half of his army. Schomberg was much blamed for not coming to action; but ſome excellent judges admired his conduct as a diſplay of great military talents. Had he riſked an engagement, and been defeated, Ireland would have been loſt. At the famous battle of the Boyne, fought on the 1ſt July 1690, which decided the fate of James, Schomberg paſſed the river at the head of his cavalry, defeated eight ſquadrons of the enemy, and broke the Iriſh infantry. When the French Proteſtants loſt their commander, Schomberg went to rally and lead them on to charge. While thus engaged, a party of king James's guards, which had been ſeparated from the reſt, paſſed Schomberg, in attempting to rejoin their own army. They attacked him with great fury, and gave him two wounds in the head. As the wounds were not dangerous, he might ſoon have recovered from them; but the French Proteſtants, perhaps thinking their general was killed, immediately fired upon the guards, and ſhot him dead on the ſpot. He was buried in St Patrick's cathedral.

School.

Biſhop Burnet ſays, Schomberg was "a calm man, of great application and conduct, and thought much better than he ſpoke; of true judgment, of exact probity, and of a humble and obliging temper."

SCHOOL, a public place, wherein the languages, the arts, or ſciences, are taught. Thus we ſay, a grammar *ſchool*, a writing *ſchool*, a *ſchool* of natural philoſophy, &c.—The word is formed from the Latin *ſchola*, which, according to Du Cange, ſignifies *diſcipline* and *correction*; he adds, that it was anciently uſed, in general, for all places where ſeveral perſons met together, either to ſtudy, to converſe, or do any other matter. Accordingly, there were *ſchola palatinæ*, being the ſeveral poſts wherein the emperor's guards were placed; *ſchola ſcutariorum*, *ſchola gentilium*, &c. At length the term paſſed alſo to civil magiſtrates; and accordingly in the code we meet with *ſchola chartulariorum*, *ſchola agentium*, &c.; and even to eccleſiaſtics, as *ſchola cantorum*, *ſchola ſacerdotum*, &c.

The Hebrews were always very diligent to teach and ſtudy the laws that they had received from Moſes. The father of the family ſtudied and taught them in his own family. The Rabbin taught them in the temple, in the ſynagogues, and in the academies. They pretend, that even before the deluge there were ſchools for knowledge and piety, of which the patriarchs had the direction.—They place Adam at their head, then Enoch, and laſtly Noah. Melchiſedec, as they ſay, kept a ſchool in the city of Kajrath-ſepher, otherwiſe Hebron, in Paleſtine. Abraham, who had been inſtructed by Heber, taught in Chaldæa and in Egypt. From him the Egyptians learned aſtronomy and arithmetic. Jacob ſucceeded Abraham in the office of teaching. The ſcripture ſays, he was "a plain man dwelling in tents;" which, according to the Chaldee paraphraſt, is, "that he was a perfect man, and a miniſter of the houſe of doctrine."

All this, indeed, muſt be very precarious and uncertain. It cannot be doubted but that Moſes, Aaron, and the elders of Iſrael, inſtructed the people in the wilderneſs, and that many good Iſraelites were very induſtrious to inſtruct their families in the fear of God. But all this does not prove to us that there were any ſuch ſchools as we are now inquiring after. Under Joſhua we ſee a kind of academy of the prophets, where the children of the prophets, that is, their diſciples, lived in the exerciſe of a retired and auſtere life, in ſtudy, in the meditation and reading of the law of God. There were ſchools of the prophets at Naioth in Ramah; 1 Sam. xix. 12, 20, &c. See the article PROPHET.

Theſe ſchools, or ſocieties of the prophets, were ſucceeded by the ſynagogues. See the article SYNAGOGUE.

Charity-Schools are thoſe ſchools which are ſet apart by public contributions or private donations for the inſtruction of poor children, who could not otherwiſe enjoy the benefits of education. In no country are

these more numerous than in Great Britain, where charity and benevolence are characteristic of the nation at large. The following is a summary view of the number of charity-schools in Great Britain and Ireland, according to the best information at present, 1795.

	Schools.	Boys.	Girls.
At London -	182	4442	2870
In other parts of South Britain, -	1329	19506	3915
In North Britain, by the account published in 1786,	135	5187	2618
In Ireland, for teaching to read and write only,	168	2406	600
In ditto, erected pursuant to his majesty's charter, and encouraged by his bounty of L. 1000 *per annum*, for instructing, employing, and wholly maintaining the children, exclusive of the Dublin work house school,	42	1935	——
Total of schools, &c.	1856	33476	10003

Sunday-Schools are another species of charity-schools lately instituted, and now pretty common in Great Britain. The institution is evidently of the first importance; and if properly encouraged must have a very favourable effect on the morals of the people, as it tends not only to preserve the children of the poor from spending Sunday in idleness, and of consequence in dissipation and vice, but enables them to lay in for the conduct and comfort of their future life a stock of useful knowledge and virtuous principles, which, if neglected in early life, will seldom be sought for or obtained amidst the hurry of business and the cares and temptations of the world.

The excellent founder of Sunday-schools was Mr Raikes, a gentleman of Gloucestershire, who, together with Mr Stock, a clergyman in the same county, and who, we believe, was equally instrumental in the business with Mr Raikes, shewed the example, and convinced many of the utility of the plan. From Gloucestershire the institution was quickly adopted in every county and almost every town and parish of the kingdom; and we have only further to remark on a plan so generally known, so much approved, and so evidently proper, that we hope men of eminence and weight will always be found sufficiently numerous and willing to bestow their time and countenance in promoting it to the utmost of their power.

SCHOONER, in sea-language, a small vessel with two masts, whose main-sail and fore-sail are suspended from gaffs, reaching from the mast towards the stern, and stretched out below by booms, whose foremost ends are hooked to an iron, which clasps the mast so as to turn therein as upon an axis, when the after-ends are swung from one side of the vessel to the other.

SCHORL, a precious stone of the second order, of which the varieties are, *Siberian*, ruby-coloured, reddish, green, brown, blue, and black; *mother of emerald*, dark green; *lapis crucifer*, or the *cross stone*; bar schorl; horn blend, black, green, or blue; *Cianite*, blue schorl; *Thumstein*; *Laxman's quadrangular schorl*. Transparent schorl is chrystallized in polygonal prisms, generally with four, six, or nine sides; some of them are so fine as to pass for gems of the first order, especially for the emerald. In the semitransparent schorls there are likewise some of great beauty, as the ruby-coloured, lately discovered in Siberia by counsellor Herman, in a bed of reddish argilla, mixed with fragments of felt spath, quartz, and mica, on a low granite mountain. The bed of argilla is evidently produced by the decomposition of granite; which operation Herman supposes must have set at liberty the ruby schorl formerly pent up in the chinks or fissures of the decomposed part of the mountain. The discovery is quite new, no such species being before known, as it is as hard as the first order of precious stones, the diamond excepted, takes a fine polish, and equals in colour the oriental ruby, though not in transparency.

Its structure is made up of fine cylindric columns, like needles collected into bundles or tresses, lying one on another in different directions, whilst each individual column is made up of fine plates or laminæ, like the gems. It is fusible *per se* into a white transparent glass, and melts imperfectly with borax when calcined, as it does with microcosmic salt and mineral alkali, into a small vitreous globe, with little spots of a white enamel colour. Acids have no effect upon it, even when calcined. Lastly, it loses its colour in the fire, after having first turned blue. The mother of emeralds is likewise a semitransparent schorl, in the opinion of some able naturalists, although Mr Born asserts it to be a jade, we know not upon what authority.

The structure of the semitransparent schorls, and some of the transparent that are not so perfectly diaphanous as to conceal their texture, is obscurely sparry; but that of the opaque is either filamentous, like asbestos, or hard and brittle like threads of glass, or it is composed of scales. Of this last kind is that called *horn blend*, which is generally green or black; but there is a beautiful variety of it found on the mount St Gothard, in Switzerland, of a fine sky-blue colour covered with silver talk. Bar schorl has been found on the Carpathian mountains chrystallized in prisms. Lapis crucifer, or the cross stone, is found sometimes near Brazil in Switzerland, and there named Tauffstein, or christening stone; but oftener at Thum in Saxony, and therefore named there Thumstein. It is a schorl in form of a cross: that of Brazil consists of two hexagonal chrystals. The exact crystallization of the other is unknown to us.

Most countries produce schorls. Russia is particularly rich in schorls. It is even difficult to point out all the different places of the empire which produce them; but we shall take notice of those most remarkable, particularly new discoveries. The ruby-coloured schorl mentioned above was found by Mr Herman at Sarapouliky, a village in the government of Perm, ten versts from Mourzinsky Slabode, in Siberia. The Siberian inspector, Mr Laxman, has lately discovered in the mountain Alpestria, on the river Sleuderka near the lake Baikal, the following new schorls. First, a green transparent schorl, of so brittle a nature as not to bear carriage without breaking into small pieces truncated. Pallas is positive in declaring this dark green schorl a hyacinth. This last has often some of the small yellowish white garnets sticking in it, described in the arti-

cle GARNET, where an account will be found of the species of matrix that contains them all. Schorls are likewise found in the mountains and mines of Nifelga, Krafnavolok, and Sondala, as likewise between the Onega Lake and White Sea. Black schorl is likewise found near the White Sea, and in the Altai, Ural, and Daurian mountains.

None of the transparent schorls have been found in Scotland as far as we have heard; but many varieties of the opake kinds have been found in various places, particularly in the island of Arran, where there is a bed of greenish horn-like schorl of immense extent near the harbour of Lamlash.

Fine specimens of schorl are dear; the ruby schorl from Siberia, 25 to 50 rubles a ring stone; the green, when fine, from 15 to 30. The high price of the ruby schorl is owing to its novelty and rarity; and of the green, is owing to its passing for an emerald. The specific gravity of schorl is 3,6.

SCHOTIA, in botany: A genus of the monogynia order, belonging to the decandria class of plants; and in the natural method ranking under the 33d order, *Lomentaceæ*. The calyx is semiquinquefid; the corolla has five petals, which are equal; the tube is turbinated, carnous, and persistent. The legumen pedicellated, and contains two seeds; there is only one species, viz. the speciosa, or African lignum vitæ.

SCHREBERA, in botany: A genus of the digynia order, belonging to the pentandria class of plants; and in the natural method ranking with those of which the order is doubtful. The calyx is quinquepartite; the corolla funnel-shaped, with the filaments in the throat, and having each a scale at the base.

SCHREVELIUS (Cornelius), a laborious Dutch critic and writer, who has given the public some editions of the ancient authors more elegant than correct: his Greek Lexicon is esteemed the best of all his works. He died in 1667.

SCHULTENS (Albert), professor of Hebrew and of the eastern languages at Leyden, and one of the most learned men of the 18th century, was born at Groningen, where he studied till the year 1706, and from thence continued his studies at Leyden and Utrecht. Schultens at length applied himself to the study of Arabic books, both printed and in manuscript; in which he made great progress. A short time after he became minister of Wassenar, and two years after professor of the eastern tongues at Franeker. At length he was invited to Leyden, where he taught Hebrew and the eastern languages with extraordinary reputation till his death, which happened in 1750. He wrote many learned works; the principal of which are, 1. A Commentary on Job, 2 vols 4to. 2. A Commentary on the Proverbs. 3. *Vetus & regia via Hebraizandi.* 4. *Animadversiones philologicæ & criticæ ad varia loca Veteris Testamenti.* 6. An excellent Hebrew grammar, &c. Schultens discovered in all his works found criticism and much learning. He maintained against Gousset and Driessen, that in order to have a perfect knowledge of Hebrew, it is necessary to join with it, not only the Chaldee and Syriac, but more particularly the Arabic.

SCHURMAN (Anna Maria), a most extraordinary German lady. Her natural genius discovered itself at six years of age, when she cut all sorts of figures in paper with her scissars without a pattern. At eight, she learned, in a few days, to draw flowers in a very agreeable manner. At ten, she took but three hours to learn embroidery. Afterwards she was taught music, vocal and instrumental; painting, sculpture, and engraving; in all of which she succeeded admirably. She excelled in miniature-painting, and in cutting portraits upon glass with a diamond. Hebrew, Greek, and Latin, were so familiar to her, that the most learned men were astonished at it. She spoke French, Italian, and English, fluently. Her hand-writing, in almost all languages, was so inimitable, that the curious preserved specimens of it in their cabinets. But all this extent of learning and uncommon penetration could not protect her from falling into the errors of Labadie, the famous French enthusiast, who had been banished France for his extravagant tenets and conduct. To this man she entirely attached herself, and accompanied him wherever he went; and even attended him in his last illness at Altena in Holstein. Her works, consisting of *De vitæ humanæ termino*, and *Dissertatio de ingenii muliebris ad doctrinam et meliores literas aptitudine*, and her Letters to her learned correspondents, were printed at Leyden in 1648; but enlarged in the edition of Utrecht, 1662, in 12mo, under the following title: *A. M. Schurman Opuscula Hebræa, Græca, Latina, Gallica, Prosaica, et Metrica.* She published likewise at Altena, in Latin, A Defence of her attachment to Labadie, while she was with him in 1673; not worth reading. She was born at Cologne in 1607, but resided chiefly in Holland, and died in Friesland in 1678.

SCHALBEA, in botany; a genus of the angiospermia order, belonging to the didynamia class of plants. The calyx is quadrifid, with a superior lobe; the lowermost longest, and emarginated.

SCHWARTS (Christopher), an eminent history-painter, born at Ingolstadt in 1550, who was distinguished by the appellation of the *German Raphael.* He learned the first principles of the art in his own country, but finished his studies at Venice; when he not only made the works of Titian his models, but had the advantage of receiving some personal instructions from that illustrious master. His performances were soon in the highest esteem, as his manner of painting was very different from what the Germans had been accustomed to before that time: he was, therefore, invited by the elector of Bavaria to his court, and appointed his principal painter. He died in 1594; and his most capital works, as well in fresco as in oil, are in the palace at Munich, and in the churches and convents.

SCHWARTENBURG, a town and castle of Germany, and circle of Upper Saxony, in the landgravate of Thuringia, and capital of a county of the same name belonging to a prince of the house of Saxony. It is seated on the river Schwartz, 20 miles south-east of Erford, and 35 north of Cullembach. E. Long. 11. 27. N. Lat. 50. 45.

SCHWARTZEMBERG, a town of Germany, in the circle of Franconia, and capital of a principality of the same name. The castle is seated on the river Lec, 5 miles north-west of Nuremberg, and 20 east of Wertzburg, subject to its own prince. E. Long. 10. 27. N. Lat. 49. 43.

SCHWEI-

SCHWEIDNITZ, a ſtrong town of Germany, in Silesia, and capital of a province of the ſame name, with a caſtle. It is the handſomeſt town of Sileſia, next to Breſlaw. The ſtreets are large, the church fine, and the houſes well built. The fortifications are not very conſiderable, and the royal palace is turned into a convent. All the magiſtrates are Roman Catholics; but moſt of the inhabitants are Proteſtants, who have a church without the town, as alſo a public ſchool and bells. It is ſeated on an eminence on the river Weiſtritz, 27 miles ſouth-eaſt of Lignitz, and 22 ſouth-weſt of Breſlaw. E. Long. 16. 48. N. Lat. 50. 46.

SCHWEINFURT, a very ſtrong, free, and imperial town of Germany, in Franconia, with a magnificent palace, where the ſenators meet, who are 12 in number. The environs are rich in cattle, corn, and wine; the inhabitants are Proteſtants, and not very rich. However, they carry on a large trade in woollen and linen cloth, gooſe-quills, and feathers. It is ſeated on the river Main, 27 miles north-eaſt of Wirtzburg, and 22 weſt of Bamberg. E. Long. 10. 25. N. Lat. 50. 4.

SCHWENKFELDIA, in botany: A genus of the monogynia order, belonging to the pentandria claſs of plants; and in the natural method ranking with thoſe that are doubtful. The calyx is quinquefid; the corolla funnel-ſhaped; the ſtigma parted into five; the berry quinquelocular, with a number of ſeeds. Of this there are three ſpecies, viz. 1. Cinerea; 2. Aſpera; 3. Hirta. The two firſt are natives of Guiana, the other of Jamaica. The leaves of all of them are remarkably rough, and ſtick to the fingers or clothes.

SCHWENKIA, in botany; a genus of the monogynia order, belonging to the diandria claſs of plants. The corolla is almoſt equal, plaited at the throat, and glandulous; there are three barren ſtamina; the capſule bilocular and polyſpermous.

SCHWINBURG, a town of Denmark, on the eaſtern coaſt of the iſland of Fionia, over-againſt the iſlands of Arroa and Langeland. E. Long. 10. 55. N. Lat. 55. 8.

SCHWITZ, or SWITZ, a canton of Swiſſerland, which gives name to them all. It is bounded on the weſt by the lake of the four cantons, on the ſouth by the canton of Uri, on the eaſt by that of Glaris, and on the north by thoſe of Zurich and Zug. Its principal riches conſiſt in cattle, and the capital town is of the ſame name. This is a large, handſome place, ſeated near the lake of the four cantons, in a pleaſant country among the mountains. E. Long. 8. 41. N. Lat. 47. 2.

SCIACCA, anciently called *Thermæ Selinuntiæ*, in Sicily, derives its preſent denomination from the Arabic word *Scheich*. It is a very ancient place, being mentioned in the account of the wars between the Greeks and Carthaginians, to the latter of whom it belonged. It is defended by ancient walls and the caſtle of Luna. It ſtands upon a very ſteep rock, hanging over the ſea, and excavated in every direction into prodigious magazines, where the corn of the neighbouring territory is depoſited for exportation; there is no harbour, but a ſmall bay formed by a wooden pier, where lighters lie to load the corn which they carry out about a mile to ſhips to anchor.

The town is irregularly but ſubſtantially built, and contains 13,000 inhabitants, though Amico's *Lexicon Topographicum* ſays the laſt enumeration found only 9484. His accounts do not take in eccleſiaſtics, and ſeveral denominations of lay perſons.

SCIÆNA, in ichthyology, a genus belonging to the order of thoracici. The membrane of the gills has ſix rays; the opercula and whole head are ſcaly. There are five ſpecies.

SCIATICA, the HIP-GOUT. See MEDICINE, n° 207.

SCIENCE, in philoſophy, denotes any doctrines deduced from ſelf-evident principles.

Sciences may be properly divided as follows, 1. The knowledge of things, their conſtitutions, properties, and operations: this, in a little more enlarged ſenſe of the word, may be called φυσικη, or *natural philoſophy*; the end of which is ſpeculative truth. See PHILOSOPHY and PHYSICS.—2. The ſkill of rightly applying theſe powers, πρακτικη: The moſt conſiderable under this head is ethics, which is the ſeeking out thoſe rules and meaſures of human actions that lead to happineſs, and the means to practiſe them (ſee MORAL PHILOSOPHY); and the next is mechanics, or the application of the powers of natural agents to the uſes of life (ſee MECHANICS).—3. The doctrine of ſigns, σημειωτικη; the moſt uſual of which being words, it is aptly enough termed *logic*. See LOGIC.

This, ſays Mr Locke, ſeems to be the moſt general, as well as natural, diviſion of the objects of our underſtanding. For a man can employ his thoughts about nothing but either the contemplation of things themſelves for the diſcovery of truth; or about the things in his own power, which are his actions, for the attainment of his own ends; or the ſigns the mind makes uſe of both in the one and the other, and the right ordering of them for its clearer information. All which three, *viz.* things as they are in themſelves knowable, actions as they depend on us in order to happineſs, and the right uſe of ſigns in order to knowledge, being *toto cœlo* different, they ſeem to be the three great provinces of the intellectual world, wholly ſeparate and diſtinct one from another.

SCILLA, the SQUILL, in botany: A genus of the monogynia order, belonging to the hexandria claſs of plants; and in the natural method ranking under the 10th order, *Coronariæ*. The corolla is hexapetalous and deciduous; the filaments filiform.

The moſt remarkable ſpecies is the maritima, or ſea-onion, whoſe roots are uſed in medicine. Of this there are two ſorts, one with a red, and the other with a white root; which are ſuppoſed to be accidental varieties, but the white are generally preferred for medicinal uſe. The roots are large, ſomewhat oval-ſhaped, compoſed of many coats lying over each other like onions; and at the bottom come out ſeveral fibres. From the middle of the root ariſe ſeveral ſhining leaves, which continue green all the winter, and decay in the ſpring. Then the flower-ſtalk comes out, which riſes two feet high, and is naked half-way, terminating in a pyramidal thyrſe of flowers, which are white, compoſed of ſix petals, which ſpread open like the points of a ſtar. This grows naturally on the ſea-ſhores, and in the ditches, where the ſalt-water naturally flows with the tide, in moſt of the warm parts of Europe, ſo cannot be propagated in gardens; the froſt in winter always

ways deſtroying the roots, and for want of ſalt-water they do not thrive in ſummer. Sometimes the roots which are bought for uſe put forth their ſtems and produce flowers, as they lie in the druggiſts ſhops.—This root is very nauſeous to the taſte, intenſely bitter, and ſo acrimonious, that it ulcerates the ſkin if much handled. Taken internally, it powerfully ſtimulates the ſolids, and promotes urine, ſweat, and expectoration. If the doſe is conſiderable, it proves emetic, and ſometimes purgative. The principal uſe of this medicine is where the primæ viæ abound with mucous matter, and the lungs are oppreſſed by tenacious phlegm. It has been recommended in hydropic caſes, taken in powder, from four to ten grains in a doſe, mixed with a double quantity of nitre. The moſt commodious mode of exhibiting this root is as a bolus or pill. Liquid forms are too diſagreeable to moſt people; though this may be remedied in ſome degree by the addition of ſome aromatic diſtilled waters. It yields the whole of its virtues to aqueous and vinous menſtrua, and likewiſe to vegetable acids.

SCILLY, or SILLEY, a cluſter of ſmall iſlands and rocks, ſituated in the Atlantic Ocean, in W. Long. 7°. N. Lat. 50°.

Theſe iſlands were firſt called *Caſſiterides*, or the *Tin Iſles*, from their being rich in that metal. The common opinion is, that this is a Greek appellation; which in the moſt obvious ſenſe is true: But as the Phœnicians were familiar with the metal, and with the country that produced it, before the Greeks knew any thing of either, it is very likely they introduced the names of both from their own language. Strabo ſays theſe iſlands were ten in number, lying cloſe together, of which only one was uninhabited: the people led an erratic life, lived upon the produce of their cattle, wore an under-garment which reached down to their ankles, and over that another, both of the ſame colour, which was black, girt round a little below the breaſt with a girdle, and walked with ſtaves in their hands. The riches of theſe iſlands were tin and lead, which, with the ſkins of their cattle, they exchanged with foreign merchants, that is, the Phœnicians from Cadiz, for earthen-ware, ſalt, and utenſils made of braſs. An author of as great or greater antiquity, ſeems to include a part at leaſt of Cornwall amongſt theſe iſlands; or rather he ſuggeſts, that they were not perfect iſlands except at full ſea, but that at ebb the inhabitants paſſed from one to another upon the ſands, and that they even tranſported their tin in large ſquare blocks upon carriages from one iſland to another. He farther takes notice, that ſuch as inhabited about Belerium (the Land's End) were in their converſation with ſtrangers remarkably civil and courteous. Other ancient writers ſtyle theſe iſlands *Heſperides*, from their weſtern ſituation, and *Oeſtrymnides*, aſſerting that the land was extremely fertile, as well as full of mines; and that the people, though very brave, were entirely addicted to commerce, and boldly paſſed the ſeas in their leather boats.

The Romans were exceedingly deſirous of having a ſhare in this commerce, which the Phœnicians as carefully laboured to prevent, by concealing their navigation to theſe iſlands as much as it was in their power. At length, however, the Romans prevailed; and Publius Craſſus coming thither, was ſo well pleaſed with the induſtry and manners of the people, that he taught them various improvements, as well in working their mines, which till that time were but ſhallow, as in carrying their own merchandiſe to different markets. There is no room to doubt that they followed the fate of the reſt of Britain, and particularly of Cornwall, in becoming ſubject to the Roman empire. We find them called in the Itinerary of Antoninus, *Sigdeles*; by Sulpitius, *Sillenæ*; and by Solinus they are termed *Silures*. All we know of them during this period is, that their tin trade continued, and that ſometimes ſtate-priſoners were exiled, or, to uſe the Roman phraſe, relegated hither as well as to other iſlands.

When the legions were withdrawn, and Britain with its dependencies left in the power of the natives, there is no reaſon to queſtion that theſe iſlands ſhared the ſame lot with the reſt. As to the appellation which from this period prevailed, the ordinary way of writing it is *Scilly*; in records we commonly find it ſpelt *Silly*, *Silley*, or *Sulley*; but we are told the old Britiſh appellation was *Sulleh*, or *Sylleh*, which ſignifies rocks conſecrated to the ſun. We have not the leaſt notice of any thing that regards them from the fifth to the tenth century. It is, however, with much appearance of truth conjectured, that ſome time within this ſpace they were in a great meaſure deſtroyed by an earthquake, attended with a ſinking of the earth, by which moſt of their lowlands, and of courſe the greateſt part of their improvements, were covered by the ſea, and thoſe rich mines of tin which had rendered them ſo famous ſwallowed up in the deep. They have a tradition in Cornwall, that a very extenſive tract of country called the *Lioneſs*, in the old Corniſh *Lethouſow*, ſuppoſed to lie between that country and Scilly, was loſt in that manner; and there are many concurrent circumſtances which render this probable. In reference to theſe iſlands, the caſe is ſtill ſtronger; for at low ebbs their ſtone-incloſures are ſtill viſible from almoſt all the iſles, and thereby afford an ocular demonſtration that they were formerly of far greater extent, and that in remoter ages their inhabitants muſt have been very numerous, and at the ſame time very induſtrious. This ſufficiently proves the fact, that by ſuch an earthquake they were deſtroyed; and that it happened at ſome period of time within thoſe limits that have been aſſigned, appears from our hearing nothing more of their tin trade, and from our having no notice of it at all in any of our ancient chronicles, which, if it had fallen out later, from their known attention to extraordinary events, muſt certainly have happened.

It is generally ſuppoſed, and with great appearance of truth, that king Athelſtan, after having overcome a very powerful confederacy formed againſt him, and having reduced Exeter, and driven the Britons beyond the river Tamar, which he made the boundary of their Corniſh dominions, paſſed over into theſe iſlands, (then ſurely in a better ſtate than now, or they would not have been objects of his vengeance), and reduced them likewiſe. Hiſtory does not inform us, that the Danes ever fixed themſelves in theſe iſlands; but as their method of fortifying is very well known, it has been conjectured that the Giant's Caſtle in the iſle of St Mary was erected by them; and indeed, if we conſider the convenient ſituation of theſe iſlands, and the

Scilly. trade of piracy which that nation carried on, there seems to be nothing improbable in that conjecture. It is more certain that there were churches erected in these isles, and that there were in them also many monks and hermits, before the conquest.

The fertility of the islands is much insisted upon in all the accounts; and it is expresly said of St Mary's, that it bears exceeding good corn, insomuch that if men did but cast corn where swine had rooted, it would come up. There is mention made of a breed of wild swine, and the inhabitants had great plenty of fowl and fish. But notwithstanding the fertility of the country, and the many commodities that men had or might have there, it was nevertheless but thinly peopled; and the reason assigned is, because they were liable to be frequently spoiled by French or Spanish pirates. In Leland's time, one Mr Davers of Wiltshire, and Mr Whittington of Gloucestershire, were proprietors of Scilly, and drew from thence, in rents and commodities, about 40 merks a-year.

The inhabitants at that juncture, and long before, appear to have carried on a small trade in dried skate and other fish to Bretagne, with which they purchased salt, canvas, and other necessaries. This seems to be the remains of a very old kind of commerce, since, for many ages, the people of that country, those of the Scilly isles, and the people of Cornwall, looked upon themselves as countrymen, being in truth no other than remnants of the ancient Britons, who, when driven out by the Saxons, took refuge in those islands, and in that part of France which had before been called *Armorica*, and from hence styled *Bretagne*, *Brittany*, or *Little Britain*, and the people *Bretons*. This, in all probability, was a great relief to those who dwelt in those isles; who, during the long civil war between the houses of York and Lancaster, had their intercourse with England so much interrupted, that if it had not been for this commerce with their neighbours on the French coast, they might have been driven to the last distress.

The Scilly, or Silley islands, lie due west from the Lizard about 17 leagues; west and by south from the old Land's End, next Mount's Bay, at the distance of 10 leagues; and from the western Land's End, they lie west-south-west, at the distance of something more than nine leagues. There are five of them inhabited; and that called *Samson* has one family in it. The largest of these is St Mary's, which lies in the north latitude of 49 degrees 55 minutes, and in the longitude of 6 degrees 40 minutes west from Greenwich. It is two miles and a half in length, about one and a half in breadth, and between nine and ten miles in compass. On the west side there projects an isthmus. Beyond this there is a peninsula, which is very high; and upon which stands Star Castle, built in 1593, with some outworks and batteries. On these there are upwards of threescore pieces of cannon mounted; and for the defence of which there is a garrison of an entire company, with a master-gunner and six other gunners. In the magazine there are arms for 300 islanders, who, when summoned, are bound to march into the fortress. Underneath the castle barracks and lines stands Hugh Town, very improperly built, as lying so low as to be subject to inundations. A mile within land stands Church Town, so denominated from their place of worship; it consists of a few houses only, with a court-house. About two furlongs east of this lies the Old Town, where there are more houses, and some of them very convenient dwellings. The number of inhabitants in this island is about 600 or 700; and it produces to the lord proprietor 300 l. *per annum*.

Trescaw lies directly north from St Mary's, at the distance of two miles. It was formerly styled *St Nicholas's island*; and was at least as large as St Mary's, though at present about half the size. The remains of the abbey are yet visible, the situation well chosen, with a fine bason of fresh water before it, half a mile long and a furlong wide, with an ever-green bank high enough to keep out the sea, and serving at once to preserve the pond, and shelter the abbey. In this pond there are most excellent eels, and the lands lying round it are by far the best in those islands. There are about half a score stone houses, with a church, which are called *Dolphin Town*; an old castle built in the reign of Henry VIII. called Oliver's Castle; and a new block-house, raised out of the ruins of that castle, which is of far greater use. This island is particularly noted for producing plenty of the finest samphire, and the only tin works that are now visible are found here. There are upon it at present about 40 families, who are very industrious, and spin more wool than in St Mary's. Its annual value is computed at 80 l. a-year.

A mile to the east of Trescaw, and about two miles from the most northern part of St Mary's, lies the isle of *St Martin's*, not much inferior in size to that of Trescaw. It very plainly appears to have been formerly extremely well cultivated; notwithstanding which it was entirely deserted, till within somewhat less than a century ago, that Mr Thomas Ekines, a considerable merchant, engaged some people to settle there. He likewise caused to be erected a hollow tower twenty feet in height, with a spire of as many feet more; which being neatly covered with lime, serves as a day-mark for directing ships crossing the channel or coming into Scilly. St Martin's produces some corn, affords the best pasture in these islands, nourishes a great number of sheep, and has upon it 17 families, who pretend to have the secret of burning the best kelp, and are extremely attached to their own island. As a proof of this, it is observable, that though some of the inhabitants rent lands in St Mary's, yet they continue to reside here, going thither only occasionally.

St Agnes, which is also called the *Light-house Island*, lies near three miles south-west of St Mary's; and is, though a very little, a very well cultivated island, fruitful in corn and grass. The only inconvenience to which the people who live in it are subject, is the want of good water, as their capital advantage consists in having several good coves or small ports, where boats may lie with safety; which, however, are not much used. The light-house is the principal ornament and great support of the island, which stands on the most elevated ground, built with stone from the foundation to the lanthorn, which is fifty-one feet high, the gallery four, the sash-lights eleven feet and a half high, three feet two inches wide, and sixteen in number. The floor of the lanthorn is of brick, upon which stands a substantial iron grate, square, barred on every side, with one great chimney in the canopy-roof, and several lesser ones to let out the smoke, and a large pair of smith's bellows

Scilly. are so fixed as to be easily used whenever there is occasion. Upon the whole, it is a noble and commodious structure; and being plastered white, is a useful day-mark to all ships coming from the southward. The keeper of this light-house has a salary from the Trinity-house at Deptford of 40l. a-year, with a dwelling-house and ground for a garden. His assistant has 20l. a-year. It is supplied with coals by an annual ship; and the carriage of these coals from the sea-side to the light-house is looked on as a considerable benefit to the poor inhabitants. They have a neat little church, built by the Godolphin family. There are at present 50 households in the island, which yield the proprietor 40l. a-year.

Brehar, or, as pronounced, *Bryer island*, lies north-west of St Mary's, and to the west of Trescaw, to which, when the sea is very low, they sometimes pass over the sand. It is very mountainous, abounds with sea and land fowls, excellent samphire, and a great variety of medical herbs. There are at present thirteen families, who have a pretty church, and pay 30l. a-year to the proprietor.

South from hence, and west from Trescaw, stands the island of *Samson*, in which there is not above one family, who subsist chiefly by the making of kelp. To the westward of these there lie four islands, which contain in the whole 360 acres of meadow and arable land. The *eastern isles*, so denominated from their position in respect to St Mary's, contain 123 acres; and there are also seven other rocky and scattered islands, that have each a little land of some use; and besides these, innumerable rocks on every side, among which we must reckon *Scilly*, now nothing more than a large, ill-shaped, craggy, inaccessible island, lying the farthest north-west of any of them, and consequently the nearest to the continent.

The air of these islands is equally mild and pure; their winters are seldom subject to frost or snow. When the former happens, it lasts not long; and the latter never lies upon the ground. The heat of their summers is much abated by sea-breezes. They are indeed frequently incommoded by sea fogs, but these are not unwholesome. Agues are rare, and fevers more so. The most fatal distemper is the small-pox; yet those who live temperately survive commonly to a great age, and are remarkably free from diseases. The soil is very good, and produces grain of all sorts (except wheat, of which they had anciently plenty) in large quantities. They still grow a little wheat, but the bread made of it is unpleasant. They eat, for this reason, chiefly what is made of barley; and of this they have such abundance, that though they use it both for bread and beer, they have more than suffices for their own consumption. The use of potatoes is a new improvement; and they prosper to such a degree, that in some places there are two crops in a-year. Roots of all sorts, pulse, and salads, grow well; dwarf fruit-trees, gooseberries, currants, raspberries, and every thing of that kind, under proper shelter, thrive exceedingly; but they have no trees, though formerly they had elder; and porthellik, *i. e.* the harbour of willows, proves they had these likewise; and with a little care, no doubt, great improvements might be made. The ranunculus, anemone, and most kinds of flowers, are successfully cultivated in their gardens. They have wild fowl of all sorts, from the swan to the snipe; and a particular kind called the *hedge chicken*, which is not inferior to the ortolan: also tame fowl, puffins, and rabbits, in great numbers. Their black cattle are generally small, but very well tasted, though they feed upon ore-weed. Their horses are little, but strong and lively. They have also large flocks of fine sheep, whose fleeces are tolerably good and their flesh excellent. There are no venomous creatures in these islands.

We must now pass to the sea, which is of more consequence to these isles than that small portion of land which is distributed amongst them. St Mary's harbour is very safe and capacious, having that island on the south; the eastern islands, with that of St Martin, on the east; Trescaw, Brehar, and Samson, to the north; St Agnes and several small islands to the west. Ships ride here in three to five fathom water, with good anchorage. Into this harbour there are four inlets, viz. Broad Sound, Smith's Sound, St Mary's Sound, and Crow Sound: so that hardly any wind can blow with which a ship of 150 tons cannot safely sail through one or other of them, Crow Sound only excepted, where they cannot pass at low water, but at high there is from 16 to 24 feet in this passage. Besides these there are two other harbours; one called *New Grynsey*, which lies between Brehar and Trescaw, where ships of 300 tons may ride securely. The other is called *Old Grynsey*, and lies between Trescaw, St Helen's, and Theon, for smaller ships. The former is guarded by the batteries at Oliver's Castle; the latter by the Blockhouse, on the eastern side of Trescaw, called *Dover*. Small coasters bound to the northward have more convenient outlets from these little harbours than from St Mary's, where, at the west end of Hugh Town, there is a fine pier built by the present earl of Godolphin, 430 feet long, 20 feet wide in the narrowest part, and 23 feet in height, with 16 feet of water at a spring, and 10 at a neap tide; so that under the shelter of this pier, vessels of 150 tons may lie securely, not only close to the quay, but all along the strand of the town.

In this harbour, and in all the little coves of the several isles, prodigious quantities of mackerel may be caught in their season; also soal, turbot, and plaise, remarkably good in their kind; and ling, which from its being a thicker fish, mellower, and better fed, is very justly preferred to any caught nearer our own coasts. Salmon, cod, pollock, are in great plenty, and pilchards in vast abundance. To these we may add the alga marina, fucus, or ore-weed, which serves to feed both their small and great cattle, manures their lands, is burned into kelp, is of use in physic, is sometimes preserved, sometimes pickled, and is in many other respects very beneficial to the inhabitants, of whom we are next to speak.

The people of Scilly in general are robust, handsome, active, hardy, industrious, generous, and good-natured; speak the English language with great propriety; have strong natural parts (though for want of a good school they have little education), as appears by their dexterity in the several employments to which they are bred. They cultivate most of their lands as well as can be expected under their present circumstances. They are bred from their infancy to the management of their boats, in which they excel; are good fishermen,

Scilly. fishermen, and excellent pilots. Their women are admirable housewives, spin their own wool, weave it into coarse cloth, and knit stockings. They have no timber of their own growth, and not much from England; yet they have many joiners and cabinet-makers, who, out of the fine woods which they obtain from captains of ships who put in here, make all kinds of domestic furniture in a very neat manner. They are free from the land tax, malt-tax, and excise; and being furnished with plenty of liquors from the vessels which are driven into their roads for refreshment, for necessary repairs, or to wait for a fair wind, in return for provisions and other conveniences; this, with what little fish they can cure, makes the best part of their trade, if we except their kelp, which has been a growing manufacture for these fourscore years, and produces at present about 500 l. per annum.

The right honourable the earl of Godolphin is styled proprietor of Scilly, in virtue of letters-patent granted to the late earl, then lord Godolphin, dated the 25th of July 1698, for the term of 89 years, to be computed from the end and expiration of a term of 50 years, granted to Francis Godolphin, Esq; by king Charles I.; that is, from the year 1709 to 1798, when his lease determines. In virtue of this royal grant, his lordship is the sole owner of all lands, houses, and tenements; claims all the tithes, not only of the fruits of the earth, but of fish taken at sea and landed upon those premises; harbour-duties paid by ships; and one moiety of the wrecks, the other belonging to the admiralty. There is only one ecclesiastical person upon the islands, who resides at St Mary's, and visits the other inhabited islands once a year. But divine service is peformed, and sermons read, every Sunday in the churches of those islands, by an honest layman appointed for that purpose; and there are likewise church-wardens and overseers, regularly chosen in every parish. As to the civil government, it is administered by what is called the *Court of Twelve;* in which the commander in chief, the proprietor's agent, and the chaplain, have their seats in virtue of their offices: the other nine are chosen by the people. These decide, or rather compromise, all differences; and punish small offences by fines, whippings, and the ducking-stool: as to greater enormities, we many conclude they have not been hitherto known; since, except for the soldiers, there is no prison in the islands. But in case of capital offences, the criminals may be transported to the county of Cornwall, and there brought to justice.

The great importance of these islands arises from their advantageous situation, as looking equally into St George's Channel, which divides Great Britain from Ireland, and the English Channel, which separates Britain from France. For this reason, most ships bound from the southward strive to make the Scilly islands, in order to steer their course with greater certainty. It is very convenient also for vessels to take shelter amongst them; which prevents their being driven to Milford Haven, nay sometimes into some port in Ireland, if the wind is strong at east; or, if it blows hard at north-west, from being forced back into some of the Cornish harbours, or even on the French coasts. If the wind should not be very high, yet if unfavourable or unsteady, as between the channels often happens, it is better to put into Scilly, than to beat about at sea in bad weather. The intercourse between these two channels is another motive why ships come in here, as choosing rather to wait in safety for a wind, than to run the hazard of being blown out of their course; and therefore a strong gale at east seldom fails of bringing thirty or forty vessels, and frequently a larger number, into Scilly; not more to their own satisfaction than to that of the inhabitants. Ships homeward-bound from America often touch there, from the desire of making the first land in their power, and for the sake of refreshment. These reasons have an influence on foreign ships, as well as our own; and afford the natives an opportunity of showing their wonderful dexterity in conducting them safely into St Mary's harbour, and, when the wind serves, through their sounds. Upon firing a gun and making a waft, a boat immediately puts off from the nearest island, with several pilots on board; and having with amazing activity dropped one of them into every ship, till only two men are left in the boat, these return again to land, as the wind and other circumstances direct, in one of their little coves.

Respecting a current which often prevails to the westward of Scilly, Mr Rennel has published some observations of much importance. "It is a circumstance (says he) well known to seamen, that ships, in coming from the Atlantic, and steering a course for the British channel, in a parallel somewhat to the south of the Scilly islands, do notwithstanding often find themselves to the north of those islands; or, in other words, in the mouth of St George's or of the Bristol channel. This extraordinary error has passed for the effects either of bad steerage, bad observations of latitude, or the indraught of the Bristol channel: but none of these account for it satisfactorily; because, admitting that at times there may be an indraught, it cannot be supposed to extend to Scilly; and the case has happened in weather the most favourable for navigating and for taking observations. The consequences of this deviation from the intended tract have very often been fatal; particularly in the loss of the Nancy packet in our own times, and that of Sir Cloudesley Shovel and others of his fleet at the beginning of the present century. Numbers of cases, equally melancholy, but of less celebrity, have occurred; and many others, in which the danger has been imminent, but not fatal, have scarcely reached the public ear. All of these have been referred to accident; and therefore no attempt seems to have been made to investigate the cause of them.

"I am, however, of opinion, that they may be imputed to a specific cause; namely, a current: and I shall therefore endeavour to investigate both that and its effects, that seamen may be apprized of the times when they are particularly to expect it in any considerable degree of strength; for then only it is likely to occasion mischief, the current that prevails at ordinary times being probably too weak to produce an error in the reckoning, equal to the difference of parallel between the south part of Scilly and the tract in which a commander, prudent in his measures, but unsuspicious of a current, would choose to sail."

The original cause of this current is the prevalence of westerly winds in the Atlantic, which impel the waters along the north coast of Spain, and accumulate them in the Bay of Biscay; whence they are projected along the coast of France, in a direction north west by west

Scilly. weſt to the weſt of Scilly and Ireland. The major aſſigns ſtrong reaſons for the exiſtence of this current between Uſhant and Ireland, in a chart of the tracks of the Hector and Atlas, Eaſt India ſhips, in 1778 and 1787. The following remarks on the effect of this current are abridged from the author's work, which is well worthy the peruſal of all ſailors and ſhipmaſters.

1ſt, If a ſhip croſſes it obliquely, that is, in an eaſt by ſouth or more ſoutherly direction, ſhe will continue much longer in it, and of courſe be more affected by it, than if ſhe croſſed it more directly. The ſame conſequence will happen if ſhe croſſes it with light winds. 2dly, A good obſervation of latitude at noon would be thought a ſufficient warrant for running eaſtward during a long night; yet as it may be poſſible to remain in the current long enough to be carried from a parallel, which may be deemed a very ſafe one, to that of the rocks of Scilly, it would appear prudent, after experiencing a continuance of ſtrong weſterly winds in the Atlantic, and approaching the Channel with light ſoutherly winds, either to make Uſhant in time of peace, or at all events to keep in the parallel of 48° 45′ at the higheſt. 3dly, Ships bound to the weſtward, from the mouth of the Channel, with the wind in the ſouth-weſt quarter, ſhould prefer the larboard tack. 4thly, Major Rennel approves the deſign of removing the lighthouſe of Scilly (if it be not already removed) to the ſouth-weſt part of the high rocks. 5thly, He recommends the ſending a veſſel, with time-keepers on board, to examine the ſoundings between the parallels of Scilly and Uſhant; from the meridian of the Lizard Point as far weſt as the moderate depths extend. A ſet of time-keepers, he obſerves, will effect more in one ſummer, in ſkilful hands, than all the ſcience of Dr Halley could do in the courſe of a long life.

In time of war, the importance of theſe iſlands is ſtill more conſpicuous; and it is highly probable, that they afforded the allies a place for aſſembling their fleet, when the Britons, Danes, Scots, and Iriſh, ſailed under the command of Anlaff, to attack King Athelſtan; which convinced him of the neceſſity of adding them to his dominions. Upon the like principle, Henry VIII. when upon bad terms with his neighbours, cauſed an old fortreſs to be repaired; and Queen Elizabeth, who had more to fear, directed the conſtruction of a caſtle, which, in part at leaſt, ſtill remains. But the moſt ſingular inſtance of the detriment that might ariſe from theſe iſlands falling into other hands than our own happened in 1651, when Sir John Grenville took ſhelter in them with the remains of the Corniſh cavaliers. For the depredations committed by his frigates ſoon made it evident that Scilly was the key of the Engliſh commerce; and the clamours of the merchants thereupon roſe ſo high, that the parliament were forced to ſend a fleet of fifty ſail, with a great body of land forces on board, under Sir George Ayſcue and admiral Blake, who with great difficulty, and no inconſiderable loſs, made themſelves maſters of Treſcaw and Brehar; where they erected thoſe lines and fortifications near the remains of the old fortreſs that are called *Oliver's Caſtle*. But at length, finding that little was to be done in that way, they choſe to grant Sir John Grenville a moſt honourable capitulation, as the ſureſt means to recover places of ſuch conſequence: with which the parliament were very little ſatisfied, till Mr Blake gave them his reaſons; which appeared to be ſo well founded, that they directed the articles he had concluded to be punctually carried into execution.

Scio || Scioppius

SCIO, or Chio, a celebrated iſland of the Archipelago (ſee Chio). It is 32 miles long and 15 broad, is a mountainous but very pleaſant country. The principal mountain, called anciently *Pelineus*, preſents to view a long lofty range of bare rock, reflecting the ſun; but the receſſes at its feet are diligently cultivated, and reward the huſbandman by their rich produce. The ſlopes are clothed with vines. The groves of lemon, orange, and citron-trees, regularly planted, at once perfume the air with the odour of their bloſſoms, and delight the eye with their golden fruit. Myrtles and jaſmines are interſperſed, with olive and palm-trees, and cypreſſes. Amid theſe the tall minarees riſe, and white houſes glitter, dazzling the beholder. The inhabitants export a large quantity of pleaſant wine to the neighbouring iſlands, but their principal trade is in ſilks. They have alſo a ſmall commerce in wool, cheeſe, figs, and maſtic. The women are better bred than in other parts of the Levant; and though the dreſs is odd, yet it is very neat. The partridges are tame, being ſent every day into the fields to get their living, and in the evening are called back with a whiſtle. The town called *Scio* is large, pleaſant, and the beſt built of any in the Levant, the houſes being beautiful and commodious, ſome of which are terraſſed, and others covered with tiles. The ſtreets are paved with flint-ſtones; and the Venetians, while they had it in their poſſeſſion, made a great many alterations for the better. The caſtle is an old citadel built by the Genoeſe, in which the Turks have a garriſon of 1400 men. The harbour of Scio is the rendezvous of all ſhipping that goes to or comes from Conſtantinople, and will hold a fleet of fourſcore veſſels. They reckon there are 10,000 Turks, 100,000 Greeks, and 10,000 Latins, on this iſland. The Turks took it from the Venetians in 1695. Scio is a biſhop's ſee, and is ſeated on the ſea-ſide, 47 miles weſt of Smyrna, and 210 ſouth-weſt of Conſtantinople.

There are but few remains of antiquity in this place. "The moſt curious of them (ſays Dr Chandler) is that which has been named without reaſon the *School of Homer*. It is on the coaſt at ſome diſtance from the city northward, and appears to have been an open temple of Cybele, formed on the top of a rock. The ſhape is oval, and in the centre is the image of the goddeſs, the head and an arm wanting. She is repreſented, as uſual, ſitting. The chair has a lion carved on each ſide, and on the back. The area is bounded by a low rim or ſeat, and about five yards over. The whole is hewn out of the mountain, is rude, diſtinct, and probably of the moſt remote antiquity. From the ſlope higher up is a fine view of the rich vale of Scio, and of the channel, with its ſhining iſlands, beyond which are the mountains on the mainland of Aſia."

SCIOPPIUS (Gaſpar), a learned German writer of the 17th century, was born at Neumark in the Upper Palatinate on the 27th of May 1576. He ſtudied at the univerſity with ſo much ſucceſs, that at the age of 16 he became an author; and publiſhed books, ſays Ferrari, which deſerved to be admired by old men. His diſpoſitions did not correſpond with his genius. Naturally paſſionate and malevolent, he aſſaulted without mercy

mercy the character of eminent men. He abjured the system of the Protestants, and became a Roman catholic about the year 1599; but his character remained the same. He possessed all those qualities which fitted him for making a distinguished figure in the literary world; imagination, memory, profound learning, and invincible impudence. He was familiar with the terms of reproach in most of the languages. He was entirely ignorant of the manners of the world. He neither showed respect to his superiors, nor did he behave with decency to his equals. He was possessed with a frenzy of an uncommon kind: he was indeed a perfect firebrand, scattering around him, as if for his amusement, the most atrocious calumnies. Joseph Scaliger, above all others, was the object of his satire. That learned man, having drawn up the history of his own family, and deduced its genealogy from princes, was severely attacked by Scioppius, who ridiculed his high pretensions. Scaliger in his turn wrote a book intitled The Life and Parentage of Gaspar Scioppius, in which he informs us, that the father of Scioppius had been successively a grave-digger, a journeyman stationer, a hawker, a soldier, a miller, and a brewer of beer. We are told that his wife was long kept as a mistress, and at length forsaken by a debauched man whom she followed to Hungary, and obliged to return to her husband; that then he treated her harshly, and condemned her to the lowest offices of servitude. His daughter, too, it is said, was as disorderly as her mother: that after the flight of her husband, who was going to be burned for some infamous crimes, she became a common prostitute; and at length grew so scandalous, that she was committed to prison. These severe accusations against the family of Scioppius inflamed him with more eagerness to attack his antagonist anew. He collected all the calumnies that had been thrown out against Scaliger, and formed them into a huge volume as if he had intended to crush him at once. He treated with great contempt the King of England, James I. in his *Ecclesiasticus*, &c. and in his *Collyrium Regium Britanniæ Regi graviter ex oculis laboranti vunere nissum*; that is, "An Eye-salve for his Britannic Majesty." In one of his works he had the audacity to abuse Henry IV. of France in a most scurrilous manner, on which account his book was burned at Paris. He was hung in effigy in a farce which was represented before the king of England, but he gloried in his dishonour. Provoked with his insolence to their sovereign, the servants of the English ambassador assaulted him at Madrid, and corrected him severely; but he boasted of the wounds he had received. He published more than thirty defamatory libels against the Jesuits; and, what is very surprising, in the very place where he declaims with most virulence against that society, he subscribes his own name with expressions of piety. *I Gaspar Scioppius, already on the brink of the grave, and ready to appear before the tribunal of Jesus Christ to give an account of my conduct.* Towards the end of his life he employed himself in studying the Apocalypse, and affirmed that he had found the key to that mysterious book. He sent some of his expositions to Cardinal Mazarine, but the cardinal did not find it convenient to read them.

Ferrari tells us, that during the last fourteen years of his life he shut himself up in a small apartment, where he devoted himself solely to study. The same writer acquaints us, that he could repeat the Scriptures almost entirely by heart; but his good qualities were eclipsed by his vices. For his love of slander, and the furious assaults which he made upon the most eminent men, he was called the *Cerberus of literature*. He accuses even Cicero of barbarisms and impropriety. He died on the 19th November 1649, at the age of 74, at Padua, the only retreat which remained to him from the multitude of enemies whom he had created. Four hundred books are ascribed to him, which are said to discover great genius and learning. The chief of these are, 1. *Verrinianum Libri* IV. 1596, in 8vo. 2. *Commentarius de arte critica*, 1661, in 8vo. 3. *De sua ad Catholicos migratione*, 1660, in 8vo. 4. *Notationes Criticæ in Phædrum, in Priapeia, Patavii*, 1664, in 8vo. 5. *Suspectarum lectionum Libri* V. 1664, in 8vo. 6. *Classicum belli sacri*, 1619, in 4to. 7 *Collyrium regium*, 1611, in 8vo. 8. *Grammatica Philosophica*, 1644, in 8vo. 9. *Relatio ad Reges et Principes de Stratagematibus et Societatis Jesu*, 1641, in 12mo This last mentioned book was published under the name of *Alphonso de Vargas*. He was at first well disposed to the Jesuits; but these fathers on one occasion opposed him. He presented a petition to the diet of Ratisbonne in 1630, in order to obtain a pension; but the Jesuits, who were the confessors both of the emperor and the electors, had influence to prevent the petition from being granted. From that moment Scioppius turned his whole artillery against the Jesuits.

SCIPIO (Publius Cornelius), a renowned Roman general, surnamed *Africanus*, for his conquests in that country. His other signal military exploits were, his taking the city of New Carthage in a single day; his complete victory over Hannibal, the famous Carthaginian general; the defeat of Syphax king of Numidia, and of Antiochus in Asia. He was as eminent for his chastity, and his generous behaviour to his prisoners, as for his valour. He died 183 B. C. aged about 51.

SCIPIO (Lucius Cornelius), his brother, surnamed *Asiaticus*, for his complete victory over Antiochus at the battle of Magnesia, in which Antiochus lost 50,000 infantry and 4000 cavalry. A triumph, and the surname of *Asiaticus*, were the rewards of his valour. Yet his ungrateful countrymen accused him, as well as his brother, of peculation; for which he was fined: but the public sale of his effects proved the falsehood of the charge; for they did not produce the amount of the fine. He flourished about 190 B. C.

SCIPIO (Publius Emilianus), was the son of Paulus Emilius; but being adopted by Scipio Africanus, he was called *Scipio Africanus junior*. He showed himself worthy of adoption, following the footsteps of Scipio Africanus, whom he equalled in military fame and public virtues. His chief victories were the conquest of Carthage and Numantia; Yet these signal services to his country could not protect him from an untimely fate. He was strangled in his bed by order of the Decemviri, who dreaded his popularity, 129 B. C. aged 56.

SCIRO, an island of the Archipelago, to the west of Mytilene, to the north-east of Negrepont, and to the south-east of Sciati. It is 15 miles in length, and 8 in breadth. It is a mountainous country, but has no mines. The vines make the beauty of the island, and the wine is excellent; nor do the natives want

Scirocho || Sciurus.

wood. There is but one village; and that is built on a rock, which runs up like a ſugar-loaf, and is 10 miles from the harbour of St George. The inhabitants are all Greeks, the cadi being the only Turk among them.

SCIROCHO, or SIROCHO, a name generally given in Italy to every unfavourable wind. In the ſouth-weſt it is applied to the hot ſuffocating blaſts from Africa, and in the north eaſt it means the cold bleak winds from the Alps.

SCIRPUS, in botany: A genus of the monogynia order, belonging to the triandria claſs of plants; and in the natural method ranking under the 3d order, *Calamariæ*. The glumes are paleaceous, and imbricated all round. There is no corolla; and only one beardleſs ſeed.

SCIRRHUS, in ſurgery and medicine, a hard tumor of any part of the body, void of pain, ariſing, as is ſuppoſed, from the inſpiſſation and induration of the fluids contained in a gland, though it may alſo appear in any other part of the body, eſpecially in the fat; being one of the ways in which an inflammation terminates. Theſe tumors are exceedingly apt to degenerate into cancers.

SCITAMINEÆ. See BOTANY, p. 459.

SCIURUS, the SQUIRREL; a genus of quadrupeds belonging to the order of glires. It has two fore-teeth in each jaw, the ſuperior ones ſhaped like wedges, and the inferior ones compreſſed. There are 11 ſpecies; of which the moſt remarkable are,

1. The *vulgaris*, or common ſquirrel, with ears terminated with long tufts of hair; large, lively, black eyes; head, body, legs, and tail, of a bright reddiſh brown; breaſt and belly white; hair on each ſide the tail lies flat. In Sweden and Lapland, it changes in winter into grey. In Ruſſia it is ſometimes found black. In many parts of England there is a beautiful variety, with milk white tails.—This ſpecies inhabits Europe and North America, the northern and the temperate parts of Aſia: and a variety is even found as far ſouth as the iſle of Ceylon. It is a neat, lively, active animal; lives always in woods: in the ſpring, the female is ſeen purſued from tree to tree by the males, feigning an eſcape from their embraces; makes its neſt of moſs and dried leaves between the fork of two branches; brings three or four young at a time; has two holes to its neſt; ſtops up that on the ſide the wind blows, as Pliny juſtly remarks; lays in a hoard of winter proviſion, ſuch as nuts, acorns, &c.; in ſummer, feeds on buds and young ſhoots; is particularly fond of thoſe of fir, and the young cones; ſits up to eat, and uſes its fore-feet as hands; covers itſelf with its tail; leaps to a ſurpriſing diſtance; when diſpoſed to croſs a river, a piece of bark is its boat, its tail the ſail; is in great plenty in Dunmallet, and there called *Conn*. Boys frequently nurſe this beautiful and active animal under cats. "There are three creatures, the ſquirrel, the field-mouſe, and the bird called the *nuthatch*, which live much on hazel nuts; and yet they open them each in a different way. The firſt, after raſping off the ſmall end, ſplits the ſhell in two with his long fore-teeth, as a man does with his knife; the ſecond nibbles a hole with his teeth, ſo regular as if drilled with a wimble, and yet ſo ſmall, that one would wonder how the kernel can be extracted through it; while the laſt pecks an irregular ragged hole with its bill; but as this artiſt has no paws to hold the nut firm while he pierces it, like an adroit workman, he fixes it, as it were in a vice, in ſome cleft of a tree, or in ſome crevice; when, ſtanding over it, he perforates the ſtubborn ſhell. While at work, they make a rapping noiſe, that may be heard at a conſiderable diſtance." *White's Selborne*.

Sciurus.

2. The *cinereus*, or grey ſquirrel, with plain ears; hair of a dull grey colour, mixed with black, and often tinged with dirty yellow; belly and inſides of the legs white; tail long, buſhy, grey, and ſtriped with black: ſize of a half-grown rabbit.—Inhabits the woods of Northern Aſia, North America, Peru, and Chili. They are very numerous in North America, do incredible damage to the plantations of maize, run up the ſtalks and eat the young ears. Deſcend in vaſt flocks from the mountains, and join thoſe that inhabit the lower parts; are proſcribed by the provinces, and a reward of three-pence per head given for every one that is killed. Such a number was deſtroyed one year, that Pennſylvania alone paid in rewards L. 8000 of its currency. Make their neſts in hollow trees, with moſs, ſtraw, wool, &c. Feed on maize in the ſeaſon, and on pine-cones, acorns, and maſts of all kinds: form holes under-ground, and there depoſit a large ſtock of winter proviſion. Deſcend from the trees, and viſit their magazines when in want of meat; are particularly buſy at the approach of bad weather; during the cold ſeaſon keep in their neſt for ſeveral days together; ſeldom leap from tree to tree, only run up and down the bodies; their hoards often deſtroyed by ſwine; when their magazines are covered with deep ſnow, the ſquirrels often periſh for want of food; are not eaſily ſhot, nimbly changing their place when they ſee the gun levelled; have the actions of the common ſquirrel; are eaſily tamed; and their fleſh is eſteemed very delicate. Their furs, which are imported under the name of *petit-gris*, are valuable, and uſed as linings to cloaks. Plate CCCCXLV fig. 1.

3. The *niger*, or black ſquirrel, with plain ears; ſometimes wholly black, but often marked with white on the noſe, the neck, or end of the tail; the tail ſhorter than that of the former; the body equal. It inhabits the north of Aſia, North America, and Mexico; breeds and aſſociates in ſeparate troops; is equally numerous with the former; commits as great ravages among the maize; makes its neſt in the ſame manner, and forms, like them, magazines for winter food. The fineſt are taken near the lake Baikal, and about Barguzinſkoi-oſtrog, upon the Upper Angara, in the diſtrict of Nertſchinſk, which are the beſt in all Siberia; theſe continue black the whole year, the others grow ruſty in ſummer.—There is a variety with plain ears; coarſe fur mixed with dirty white and black; throat and inſide of the legs and thighs black; tail much ſhorter than thoſe of ſquirrels uſually are; of a dull yellow colour, mixed with black; body of the ſize of the grey ſquirrel. It inhabits Virginia; the planters call it the *cat ſquirrel*.

4. The *flavus*, or fair ſquirrel, with the body and tail of a flaxen colour; of a very ſmall ſize, with plain round ears, and rounded tail. Inhabits the woods near Amadabad, the capital of Guzurat, in great abundance, leaping from tree to tree. Linnæus ſays it is an inhabitant of South America.

5. The *ſtriatus*, or ground ſquirrel, with plain ears; ridge

Sciurus. ridge of the back marked with a black ſtreak; each ſide with a pale yellow ſtripe, bounded above and below with a line of black; head, body, and tail, of a reddiſh brown; the tail the darkeſt: breaſt and belly white; noſe and feet pale-red; eyes full.—Inhabits the north of Aſia, but found in the greateſt abundance in the foreſts of North America. They never run up trees except they are purſued, and find no other means of eſcaping: they burrow, and form their habitations under ground, with two entrances, that they may get acceſs to the one in caſe the other is ſtopped up. Their retreats are formed with great ſkill, in form of a long gallery, with branches on each ſide, each of which terminates in an enlarged chamber, as a magazine to ſtore their winter proviſion in; in one they lodge the acorns, in another the maize, in a third the hickery nuts, and in the laſt their favourite food the chinquapin cheſnut. They very ſeldom ſtir out during winter, at leaſt as long as their proviſions laſt; but if that fails, they will dig into cellars where apples are kept, or barns where maize is ſtored, and do a great deal of miſchief; but at that time the cat deſtroys great numbers, and is as great an enemy to them as to mice. During the maize harveſt theſe ſquirrels are very buſy in biting off the ears, and filling their mouths ſo full with the corn, that their cheeks are quite diſtended. It is obſervable that they give great preference to certain food; for if, after filling their mouths with rye, they happen to meet with wheat, they fling away the firſt, that they may indulge in the laſt. They are very wild, bite ſeverely, and are ſcarcely ever tamed; the ſkins are of little uſe, but are ſometimes brought over to line cloaks.

6. The *glis*, or fat ſquirrel, with thin naked ears; body covered with ſoft aſh-coloured hair; belly whitiſh; tail full of long hair: from noſe to tail, near ſix inches; tail, four and a half: thicker in the body than the common ſquirrel.—Inhabits France and the ſouth of Europe; lives in trees, and leaps from bough to bough; feeds on fruits and acorns; lodges in the hollows of trees; remains in a torpid ſtate during winter, and grows very fat. It was eſteemed a great delicacy by the Romans, who had their gliraria, places conſtructed to keep and feed them in.

g. 2. 7. The *ſagitta*, or arrow ſquirrel, with a ſmall round head, cloven upper lip: ſmall blunt ears, two ſmall warts at the utmoſt corner of each eye, with hairs growing out of them: neck ſhort: four toes on the fore feet; and inſtead of a thumb, a ſlender bone two inches and a half long, lodged under the lateral membrane, ſerving to ſtretch it out: from thence to the hind legs extends the membrane, which is broad, and a continuation of the ſkin of the ſides and belly: there are five toes on the hind feet; and on all the toes, ſharp compreſſed bent claws: the tail is covered with long hairs diſpoſed horizontally: colour of the head, body, and tail, a bright bay; in ſome parts inclining to orange: breaſt and belly of a yellowiſh white: length from noſe to tail, eighteen inches; tail, fifteen.—Inhabits Java, and others of the Indian iſlands: leaps from tree to tree as if it flew: will catch hold of the boughs with its tail. Niewhoff, p. 354. deſcribes this under the name of the flying cat, and ſays the back is black.

8. The *volans*, or flying ſquirrel, with round naked ears, full black eyes, and a lateral membrane from the fore to the hind legs: tail with long hairs diſpoſed horizontally, longeſt in the middle: its colour above, a brownish aſh; beneath, white tinged with yellow; much leſs than the common ſquirrel. Inhabits Finland, Lapland, Poland, Ruſſia, North America, and New Spain: lives in hollow trees: ſleeps in the day: during the night is very lively: is gregarious, numbers being found in one tree: leaps from bough to bough ſometimes at the diſtance of ten yards: this action has improperly been called flying, for the animal cannot go in any other direction than forward; and even then cannot keep an even line, but ſinks conſiderably before it can reach the place it aims at: ſenſible of this, the ſquirrel mounts the higher in proportion to the diſtance it wiſhes to reach: when it would leap, it ſtretches out the fore-legs, and extending the membranes becomes ſpecifically lighter than it would otherwiſe be, and thus is enabled to ſpring further than other ſquirrels that have not this apparatus. When numbers leap at a time, they ſeem like leaves blown off by the wind. Their food the ſame as the other ſquirrels. They are eaſily tamed: bring three or four young at a time. See fig. 3 & 4, the one repreſenting the animal in what is called a *flying*, the other in a *ſitting*, poſture.

SCIURUS, in botany: A genus of the monogynia order, belonging to the diandria claſs of plants; and in the natural method ranking with thoſe that are doubtful. The calyx is quinquedentate; the corolla bilabiated; the filaments are barren; the capſules five, and joined together; bivalved, unilocular, with one ſeed. Of this there is one ſpecies, viz. *aromatica*, a native of Guiana.

SCLAVONIA, a country of Europe, between the rivers Save, the Drave, and the Danube. It is divided into ſix counties, viz. Poſegra, Zabrab, Creis, Waraſden, Zreim, and Walpon and belongs to the houſe of Auſtria. It was formerly called a *kingdom*; and is very narrow, not being above 75 miles in breadth; but it is 300 in length, from the frontiers of Auſtria to Belgrade. The eaſtern part is called *Ratzia*, and the inhabitants *Ratzians*. Theſe, from a particular notion, are of the Greek church. The language of Sclavonia is the mother of four others, namely, thoſe of Hungary, Bohemia, Poland, and Ruſſia.

SCLERANTHUS, in botany: A genus of the digynia order, belonging to the dodecandria claſs of plants, and in the natural method ranking under the 22d order, *Caryophyllei*. The calyx is monophyllous; there is no corolla; there are two ſeeds contained in the calyx.

SCLERIA, in botany: A genus of the tetrandria order, belonging to the monœcia claſs of plants; and in the natural method ranking under the 4th order, *Gramina*. The calyx has a gluma, with from two to ſix valves; the flowers numerous; the ſeed a ſort of nut, ſmall, oblong, and ſhining. There are ſix ſpecies, all of them natives of the Weſt Indies.

SCLEROTICS, medicines proper to harden and conſolidate the fleſh of the parts to which they are applied; as purſlain, houſe-leek, flea-wort, garden night-ſhade, &c.

SCOLOPAX, in ornithology, a genus belonging to the order of grallæ. The back is cylindrical, obtuſe, and longer than the head; the noſtrils are linear; the face is covered; and the feet have four toes. There are 18 ſpecies; of which the following are the principal.

Scolopax. Plate CCCCXLV.

1. The *arquata*, or curlew, frequents our sea-coasts and marshes in the winter time in large flocks, walking on the open sands; feeding on shells, frogs, crabs, and other marine insects. In summer they retire to the mountainous and unfrequented parts of the country, where they pair and breed. Their eggs are of a pale olive colour, marked with irregular but distinct spots of pale brown. Their flesh is very rank and fishy, notwithstanding an old English proverb in its favour. Curlews differ much in weight and size; some weighing 37 ounces, others not 22: the length of the largest to the tip of the tail, 25 inches; the breadth, three feet five inches; the bill is seven inches long: the head, neck, and coverts of the wings, are of a pale brown; the middle of each feather, black; the breast and belly white, marked with narrow oblong black lines: the back is white, spotted with a few black strokes: the quill-feathers are black, but the inner webs spotted with white; the tail is white, tinged with red, and beautifully barred with black; the legs are long, strong, and of a bluish grey colour; the bottoms of the toes flat and broad, to enable it to walk on the soft mud, in search of food.

2. The *phæopus*, or whimbrel, is much less frequent on our shores than the curlew; but its haunts, food, and general appearance, are much the same. It is observed to visit the neighbourhood of Spalding (where it is called the *curlew knot*) in vast flocks in April, but continues there no longer than May; nor is it seen there any other time of the year: it seems at that season to be on its passage to its breeding place, which Mr Pennant suspects to be among the Highlands of Scotland. The specific difference is the size; this never exceeding the weight of 12 ounces.

3. The *rusticola*, or woodcock, during summer inhabits the Alps of Norway, Sweden, Polish Prussia, the march of Brandenburg, and the northern parts of Europe: they all retire from those countries the beginning of winter, as soon as the frosts commence; which force them into milder climates, where the ground is open, and adapted to their manner of feeding. They live on worms and insects, which they search for with their long bills in soft grounds and moist woods.—Woodcocks generally arrive here in flocks, taking advantage of the night or a mist: they soon separate; but before they return to their native haunts, pair. They feed and fly by night; beginning their flight in the evening, and return the same way or through the same glades to their day retreat. They leave England the latter end of February, or beginning of March; not but they have been known to continue here accidentally. These birds appear in Scotland first on the eastern coasts, and make their progress from east to west. They do not arrive in Breadalbane, a central part of the kingdom, till the beginning or middle of November; nor the coasts of Nether Lorn, or of Rossshire, till December or January: they are very rare in the remote Hebrides, and in the Orkneys. A few stragglers now and then arrive there. They are equally scarce in Caithness. Our species of woodcock is unknown in North America: but a kind is found that has the general appearance of it; but is scarce half the size, and wants the bars on the breast and belly. The weight of the woodcock is usually about 12 ounces; the length near 14 inches; and the breadth, 26; the bill is three inches long, dusky towards the end, reddish at the base; tongue slender, long, sharp, and hard at the point; the eyes large, and placed near the top of the head, that they may not be injured when the bird thrusts its bill into the ground; from the bill to the eyes is a black line; the fore-head is a reddish ash colour; the crown of the head, the hind part of the neck, the back, the coverts of the wings, and the scapulars, are prettily barred with a ferruginous red, black, and grey; but on the head the black predominates: the quill-feathers are dusky, indented with red marks. The chin is of a pale yellow; the whole under side of the body is of a dirty white, marked with numerous transverse lines of a dusky colour. The tail consists of 12 feathers, dusky or black on the one web, and marked with red on the other; the tips above, are ash-coloured, below white; which, when shooting on the ground was in vogue, was the sign the fowler discovered the birds by. The legs and toes are livid; the latter divided almost to their very origin, having only a very small web between the middle and interior toes; as those of the two species of snipes found in England.

4. The *ægocephala*, or godwit, weighs 12 ounces and a half; the length is 16 inches; the breadth 27; the bill is four inches long, turns up a little, black at the end, the rest a pale purple; from the bill to the eye is a broad white stroke; the feathers of the head, neck, and back, are of a light reddish brown, marked in the middle with a dusky spot; the belly and vent feathers white, the tail regularly barred with black and white. The six first quill-feathers are black; their interior edges of a reddish brown; the legs in some are dusky, in others of a greyish blue, which perhaps may be owing to different ages; the exterior toe is connected as far as the first joint of the middle toe with a strong serrated membrane. The male is distinguished from the female by some black lines on the breast and throat; which in the female are wanting. These birds are taken in the fens, in the same season and in the same manner with the ruffs and reeves *; and when fattened are esteemed a great delicacy, and sell for half a crown or five shillings a piece. A stale of the same species is placed in the net. They appear in small flocks on our coasts in September, and continue with us the whole winter; they walk on the open sands like the curlew, and feed on insects.

* See Tringa.

5. The *glottis*, or greenshank, is in length to the end of the tail, 14 inches; to that of the toes, 20; its breadth, 25. The bill is two inches and a half long; the upper mandible black, straight, and very slender; the lower reflects a little upwards; the head and upper part of the neck are ash-coloured, marked with small dusky lines pointing down; over each passes a white line; the coverts, the scapulars, and upper part of the back, are of a brownish ash-colour; the quill-feathers dusky, but the inner webs speckled with white; the breast, belly, thighs, and lower part of the back, are white; the tail is white, marked with undulated dusky bars: the inner coverts of the wings finely crossed with double and treble rows of a dusky colour. It is a bird of an elegant shape, and small weight in proportion to its dimensions, weighing only six ounces. The legs are very long and slender, and bare above two inches higher than the knees. The exterior toe is united to the middle toe, as far as the second joint, by a strong mem-

Scolopax, Scolopendra.

membrane which borders their ſides to the very end.—These birds appear on the Engliſh coaſts and wet grounds in the winter-time in but ſmall numbers.

6. The *calidris*, or red-ſhank, is found on moſt of our ſhores; in the winter-time it conceals itſelf in the gutters, and is generally found ſingle or at moſt in pairs. It breeds in the fens and marſhes; and flies round its neſt when diſturbed, making a noiſe like a lapwing. It lays four eggs, whitiſh tinged with olive, marked with irregular ſpots of black chiefly on the thicker end. It weighs five ounces and a half: the length is 12 inches, the breadth 21; the bill near two inches long, red at the baſe, black towards the point. The head, hind part of the neck, and ſcapulars, are of a duſky aſh-colour, obſcurely ſpotted with black; the back is white, ſprinkled with black ſpots; the tail elegantly barred with black and white; the cheeks, under ſide of the neck, and upper part of the breaſt, are white, ſtreaked downward with duſky lines; the belly white; the exterior webs of the quill-feathers are duſky; the legs long, and of a fine bright orange colour; the utmoſt toe connected to the middle toe by a ſmall membrane; the inmoſt by another ſtill ſmaller.

7. The *gallinago*, or common ſnipe, weighs four ounces; the length, to the end of the tail, is near 12 inches; the breadth about 14; the bill is three inches long, of a duſky colour, flat at the end, and often rough like ſhagrin above and below. The head is divided lengthwiſe with two black lines, and three of red, one of the laſt paſſing over the middle of the head, and one above each eye: between the bill and the eyes is a duſky line; the chin is white; the neck is varied with brown and red. The ſcapulars are beautifully ſtriped lengthwiſe with black and yellow; the quill-feathers are duſky; but the edge of the firſt is white, as are the tips of the ſecondary feathers: the quill-feathers next the back are barred with black and pale red; the breaſt and belly are white; the coverts of the tail are long, and almoſt cover it; they are of a reddiſh brown colour. The tail conſiſts of 14 feathers, black on their lower part, then croſſed with a broad bar of deep orange, another narrow one of black; and the ends white, or pale orange. The vent feathers are of a dull yellow; the legs pale green; the toes divided to their origin. In the winter-time ſnipes are very frequent in all our marſhy and wet grounds, where they lie concealed in the ruſhes, &c. In ſummer they diſperſe to different parts, and are found in the midſt of our higheſt mountains as well as of our low moors; their neſt is made of dried graſs; they lay four eggs of a dirty olive colour, marked with duſky ſpots; their young are ſo often found in England, that we doubt whether they ever entirely leave this iſland. When they are diſturbed much, particularly in the breeding ſeaſon, they ſoar to a vaſt height, making a ſingular bleating noiſe; and when they deſcend, dart down with vaſt rapidity: it is alſo amuſing to obſerve the cock, while his mate ſits on her eggs, poiſe himſelf on her wings, making ſometimes a whiſtling and ſometimes a drumming noiſe. Their food is the ſame with that of the woodcock; their flight very irregular and ſwift, and attended with a ſhrill ſcream. They are moſt univerſal birds, found in every quarter of the globe, and in all climates.

SCOLOPENDRA, in zoology, a genus of inſects belonging to the order of aptera. The feet are very numerous, being as many on each ſide as there are joints in the body; the antennæ are ſetaceous: there are two jointed pappi, and the body is depreſſed.—Theſe inſects are very formidable and noxious in the warm countries, where they grow to the length of a quarter of a yard or more, though in this climate they ſeldom grow above an inch long. The ſcolopendra is alſo called the *centipes* from its number of feet. In the Eaſt Indies it grows to ſix inches in length, and as thick as a man's finger: it conſiſts of many joints; and from each joint proceeds a leg on each ſide: they are covered with hair, and ſeem to have no eyes; but there are two feelers on the head, with which they find out the way they are to paſs: the head is very round, with two ſmall ſharp teeth, with which they inflict wounds that are very painful and dangerous. A ſailor that was bit by one on board a ſhip felt exceſſive pain, and his life was ſuppoſed to be in danger; but by the application of roaſted onions to the part he recovered. The bite of the ſcolopendra *morſitans* § in Jamaica is ſaid to be as poiſonous as the ſting of a ſcorpion.—Some of the ſpecies live in holes in the earth: others under ſtones, and among rotten wood; ſo that the removing of theſe is exceedingly dangerous in the countries where the ſcolopendræ breed.—Theſe inſects, like the ſcorpion, are ſuppoſed to be produced perfect from the parent or the egg, and to undergo no changes after their firſt excluſion. They are found of all ſizes; which is a ſufficient reaſon for believing that they preſerve their firſt appearance through the whole of their exiſtence. It is probable, however, that, like moſt of this claſs, they often change their ſkins; but of this we have no certain information. The ſcolopendra forficata is the largeſt in this country, of a dun colour, ſmooth, and compoſed of nine ſcaly ſegments, without reckoning the head. The feet are 15 in number on each ſide, and the laſt longer than the reſt, and turned backwards, form a kind of forky tail. The antennæ are twice the length of the head, and conſiſt of 42 ſhort ſegments. The inſect's progreſſive motion is very quick, and ſometimes ſerpentine. It is found under ſtones on the ground, under flower-pots and garden boxes.

Scolopendra || Scomber.

§ See Plate CCCCXLV.

SCOLYMUS, in botany: A genus of the polygamia æqualis order, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The receptacle is paleaceous; the calyx imbricated and prickly, without any pappus.

SCOMBER, the Mackerel, in ichthyology, a genus belonging to the order of thoracici. The head is ſmooth and compreſſed, and there are ſeven rays in the gill membrane. There are ten ſpecies;—of which the moſt remarkable are the following.

1. The ſcomber, or common mackerel, a ſummer-fiſh of paſſage that viſits our ſhores in vaſt ſhoals. It is leſs uſeful than other ſpecies of gregarious fiſh, being very tender, and unfit for carriage; not but that it may be preſerved by pickling and ſalting, a method, we believe, practiſed only in Cornwall, where it proves a great relief to the poor during winter. It was a fiſh greatly eſteemed by the Romans, becauſe it furniſhed the precious garum, a ſort of pickle that gave a high reliſh to their ſauces; and was beſides uſed medicinally. It was drawn from different kinds of fiſh, but that made from the mackerel had the preference: the beſt was made at

Scomber. Carthagena, vast quantities of mackerel being taken near an adjacent isle, called from that circumstance *Scombraria*, and the garum, prepared by a certain company in that city, bore a high price, and was distinguished by the title of *garum Scombrum*. This fish is easily taken by a bait; but the best time is during a fresh gale of wind, which is thence called a *mackerel gale*. In the spring the eyes of mackerel are almost covered with a white film; during which period they are half blind. This film grows in winter, and is cast the beginning of summer. It is not often that it exceeds two pounds in weight, yet there have been instances of some that weighed upwards of five. The nose is taper and sharp pointed; the eyes large; the jaws of an equal length; the teeth small, but numerous. The form of this fish is very elegant. The body is a little compressed on the sides: towards the tail it grows very slender, and a little angular. It is a most beautiful fish when alive; for nothing can equal the brilliancy of its colour, which death impairs, but does not wholly obliterate.

2. The thunnus, or tunny, was a fish well known to the ancients: it made a considerable branch of commerce: the time of its arrival in the Mediterranean from the ocean was observed, and stations for taking them were established in places it most frequented.

There are still very considerable tunny fisheries on the coast of Sicily, as well as several other parts of the Mediterranean; where they are cured, and make a great article of provision in the adjacent kingdoms.—They are caught in nets, and amazing quantities are taken; for they come in vast shoals, keeping along the shores. See *Tunny-Fishery*.

They frequent our coasts, but not in shoals like the tunnies of the Mediterranean. They are not uncommon in the lochs on the western coast of Scotland; where they come in pursuit of herrings; and often during night strike into the nets, and do considerable damage. When the fishermen draw them up in the morning, the tunny rises at the same time towards the surface, ready to catch the fish that drop out. On perceiving it, a strong hook baited with a herring, and fastened to a rope, is instantly flung out, which the tunny seldom fails to take. As soon as hooked, it loses all spirit; and after a very little resistance submits to its fate. It is dragged to the shore and cut up, either to be sold fresh to people who carry it to the country markets, or is preserved salted in large casks. The pieces, when fresh, look exactly like raw beef; but when boiled turn pale, and have something of the flavour of salmon.

One that was taken when Mr Pennant was at Inverary in 1769, weighed 460 pounds. The fish was seven feet ten inches long: the greatest circumference five feet seven; the least near the tail one foot six. The body was round and thick, and grew suddenly very slender towards the tail, and near that part was angular. The irides were of a plain green: the teeth very minute. The tail was in form of a crescent; and two feet seven inches between tip and tip. The skin on the back was smooth, very thick, and black. On the belly the scales were visible. The colour of the sides and belly was silvery, tinged with cærulean and pale purple: near the tail marbled with grey.

They are known on the coast of Scotland by the name of *mackrelsture*: *Mackrel*, from being of that genus; and *sture*, from the Danish, *stor* "great."

Scone Scoria. SCONE, a town of Scotland, remarkable for being the place where the kings were anciently crowned. W. Long. 3. 10. N. Lat. 56. 28. Here was once an abbey of great antiquity, which was burnt by the reformers at Dundee. Kenneth II. upon his conquest of the Picts in the ninth century, having made Scone his principal residence, delivered his laws, called the *Macalpine laws*, from a *tumulus*, named the *Mote Hill of Scone*. The present palace was begun by the earl of Gowrie; but was completed by Sir David Murray of Gospatrie, the favourite of king James VI. to whom that monarch had granted it; and the new possessor in gratitude to his benefactor put up the king's arms in several parts of the house. It is built around two courts. The dining room is large and handsome; and has an ancient and magnificent chimney-piece, and the king's arms, with this motto:

Nobis hæc invicta miserunt centum sex proavi.

Beneath are the Murray arms. In the drawing room is some good old tapestry, with an excellent figure of Mercury. In a small bed-chamber is a medley scripture-piece in needle-work, with a border of animals, pretty well done, the work of queen Mary during her confinement in Loch Leven Castle. The gallery is about 155 feet long, the top arched, divided into compartments filled with paintings in water-colours. The pieces represented are various kinds of huntings; that of Nimrod, and king James and his train, appear in every piece. Till the destruction of the abbey, the kings of Scotland were crowned here, sitting in the famous wooden chair which Edward I. transported to Westminster abbey, to the great mortification of the Scots, who looked upon it as a kind of palladium. Charles II. before the battle of Worcester, was crowned in the present chapel. The old pretender resided for some time at Scone in 1715; and his son paid it a visit in 1745.

SCOPARIA, in botany: A genus of the monogynia order, belonging to the tetrandria class of plants; and in the natural method ranking under the 40th order, *Personatæ*. The calyx is quadripartite; the corolla the same, and rotaceous; the capsule unilocular, bivalved, and polyspermous.

SCOPER, or SCUPPER HOLES, in a ship, are holes made through the sides, close to the deck, to carry off the water that comes from the pump.

SCOPOLIA, in botany: A genus of the octandria order, belonging to the gynandria class of plants; and in the natural method ranking under the 11th class, *Sarmentaceæ*. The calyx is diphyllous; the corolla quadrifid; the antheræ coalesce in two columns, one placed above the other. Of this there is only one species, viz. the *Composita*.

SCORBUTUS, the SCURVY. See MEDICINE, n° 8.

SCORDIUM, or WATER-GERMANDER, in botany, a species of TEUCRIUM.

SCORIA, or DROSS, among metallurgists, is the recrement of metals in fusion; or, more determinately speaking, is that mass which is produced by melting metals and ores: when cold, it is brittle, and not dissoluble in water, being properly a kind of glass.

Scorification, Scorpio.

SCORIFICATION, in metallurgy, is the art of reducing a body, either entirely or in part, into scoria.

SCORPÆNA, in ichthyology, a genus belonging to the order of thoracici. The head is large and sharp; the eyes are near each other; there are teeth in the jaws, palate, and fauces; and there are seven rays in the membrane of the gill. The species are three, viz. the *porcus*, *scrofa*, and *horrida*. According to Mr Willoughby, the scorpæna is a fish of the anguilliform kind, called by the people of Cornwall *father-lasher*. *Scorpæna* is also the name of a fish caught in many parts of the Mediterranean. It seldom grows to more than a pound weight. Its body is long, but not flatted, and is moderately thick. Its head is extremely large, and is armed with prickles, and it grows gradually less from thence to the tail. The prickles about the head are accounted venomous, and the fishermen usually cut them off as soon as the fish is caught. Its tail is not forked, but rounded at the end. The belly and belly-fins are reddish.

Plate CCCCXLV.

SCORPIO, in zoology, a genus of insects belonging to the order of aptera. It has eight feet, besides two frontal claws; the eyes are eight in number, three on each side of the thorax, and two on the back. It has two claw-shaped palpi, a long jointed tail, with a pointed weapon at the extremity; it has likewise two combs situated betwixt the breast and abdomen. There are six species, all natives of southern climates.

Of all the classes of noxious insects the scorpion is the most terrible, whose shape is hideous, whose size among the insects is enormous, and whose sting is generally fatal. Happy for Britain, the scorpion is entirely a stranger among us! In several parts of the continent of Europe it is but too well known, though it seldom grows above four inches long: but in the warm tropical climates, it is seen a foot in length, and in every respect as large as a lobster, which it somewhat resembles in shape. There have been enumerated nine different kinds of this dangerous insect, including species and varieties, chiefly distinguished by their colour; there being scorpions yellow, brown, and ash-coloured; others that are the colour of rusty iron, green, pale yellow, black, claret colour, white, and grey. There are four principal parts distinguishable in this animal; the head, the breast, the belly, and the tail. The scorpion's head seems, as it were, jointed to the breast; in the middle of which are seen two eyes; and a little more forward, two eyes more, placed in the fore part of the head: those eyes are so small, that they are scarcely perceivable; and it is probable the animal has but little occasion for seeing. The mouth is furnished with two jaws: the undermost is divided into two, and the parts notched into each other, which serves the animal as teeth, and with which it breaks its food, and thrusts it into its mouth: these the scorpion can at pleasure pull back into its mouth, so that no part of them can be seen. On each side of the head are two arms, each composed of four joints; the last of which is large, with strong muscles, and made in the manner of a lobster's claw. Below the breast are eight articulated legs, each divided into six joints; the two hindmost of which are each provided with two crooked claws, and here and there covered with hair. The belly is divided into seven little rings; from the lowest of which is continued a tail, composed of six joints, which are bristly, and formed like little globes, the last being armed with a crooked sting. This is that fatal instrument which renders this insect so formidable: it is long, pointed, hard, and hollow; it is pierced near the base by two small holes, through which, when the animal stings, it ejects a drop of poison, which is white, caustic, and fatal. The reservoir in which this poison is kept, is in a small bladder near the tail, into which the venom is distilled by a peculiar apparatus. If this bladder be greatly pressed, the venom will be seen issuing out through the two holes above-mentioned; so that it appears, that when the animal stings, the bladder is pressed, and the venom issues through the two apertures into the wound.

We have here given the common account of the sting of these noxious animals; but though we cannot pretend to determine between them, we shall lay before our readers the following observations from a treatise on *Tropical Diseases*, &c. by Dr Moseley of the Chelsea Hospital. "Galen justly observes, that a person who had not witnessed the fact, would not suppose that so small an injury as the sting of a scorpion, or the bite of a poisonous spider, could produce the violent effects which they do in the whole body. He says, the aculeus, or sting, of a scorpion ends in the minutest point: and has no perforation through which any poison can pass into the wound. Yet, he says, we must suppose the venom to be some spirital substance, or moisture, in which a great power is concentrated in a small compass. Before I had an opportunity (says Dr Moseley) of examining this subject, my respect for the opinion of Galen made me doubt the accuracy of Leeuwenhoek, Redi, Mead, and others, who assert that there is an aperture near the cuspis of a scorpion's sting; and that through this aperture a liquid poison is injected when a wound is inflicted. Repeated experiments, with the best glasses, have never enabled me to discover any foramen, or opening, whatever."

The following cure may also be worth the reader's notice. "Mrs Pidgeley, at Kingston in Jamaica, in January 1781, was stung by a scorpion in the foot, above the little toe. The part became instantly red and painful; and soon after livid. The pain increased to great severity. Some rum was applied to the wound, on which the pain immediately left the foot, and passed up to the groin, with great agony. The pain still passed upwards, and diffused itself about the pit of the stomach, neck, and throat, attended with tremors, cold sweats, and languors. As the pain passed the abdomen, it occasioned a violent purging and fainting, which ceased on its advancing higher. I * was called to her, and gave her the following medicines, a few doses of which removed every symptom. She had been extremely ill for thirty-six hours. ℞ *Sal. Succin.* ℈ ss; *Camphor. gr.* xij; *Cinnabar. Antimon gr.* x; *Conserv. Cardi. q. s. fiant boli sex.* One of these was taken every hour, with four spoonfuls of the following mixture: ℞ *Aq. Menthæ* ℥ vij; *Elix. Paregoric.* ʒ ij; *Syr. Croci* ʒ ij; *Misce*."

* Dr Moseley.

There are few animals more formidable, or more truly mischievous, than the scorpion. As it takes refuge in a small place, and is generally found sheltering in houses, it must frequently sting those among

Scorpio. whom it resides. In some of the towns of Italy, and in France, in the province of Languedoc, it is one of the greatest pests that torments mankind: but its malignity in Europe is trifling, when compared to what the natives of Africa and the east are known to experience. In Batavia, where they grow twelve inches long, there is no removing any piece of furniture, without the utmost danger of being stung by them. Bosman assures us, that along the Gold Coast they are often found larger than a lobster; and that their sting is inevitably fatal. In Europe, however, they are by no means so large, so venomous, or so numerous. The general size of this animal does not exceed two or three inches; and its sting is very seldom found to be fatal. Maupertius, who made several experiments on the scorpion of Languedoc, found it by no means so invariably dangerous as had till then been represented. He provoked one of them to sting a dog, in three places of the belly where the animal was without hair. In about an hour after, the poor animal seemed greatly swollen, and became very sick: he then cast up whatever he had in his bowels; and for about three hours continued vomiting a whitish liquid. The belly was always greatly swollen when the animal began to vomit; but this operation always seemed to abate the swelling; which alternately swelled, and was thus emptied, for three hours successively. The poor animal after this fell into convulsions, bit the ground, dragged himself along upon his fore-feet, and at last died, five hours after being bitten. He was not partially swollen round the place which was bitten, as is usual after the sting of a wasp or a bee; but his whole body was inflated, and there only appeared a red spot on the places where he had been stung.

Some days after, however, the same experiment was tried upon another dog, and even with more aggravated cruelty: yet the dog seemed no way affected by the wounds: but, howling a little when he received them, continued alert and well after them; and soon after was set at liberty, without showing the smallest symptoms of pain. So far was this poor creature from being terrified at the experiment, that he left his own master's house, to come to that of the philosopher, where he had received more plentiful entertainment. The same experiment was tried by fresh scorpions upon seven other dogs, and upon three hens; but not the smallest deadly symptom was seen to ensue. From hence it appears, that many circumstances, which are utterly unknown, must contribute to give efficacy to the scorpion's venom. Whether its food, long fasting, the season, the nature of the vessels it wounds, or its state of maturity, contribute to or retard its malignity, is yet to be ascertained by succeeding experiment. In the trials made by our philosopher, he employed scorpions of both sexes, newly caught, and seemingly vigorous and active. The success of this experiment may serve to shew, that many of those boasted antidotes which are given for the cure of the scorpion's sting, owe their success rather to accident than their own efficacy. They only happened to cure when their sting was no way dangerous; but in cases of actual malignity, they might probably be utterly unserviceable.

The scorpion of the tropical climates being much larger than the former, is probably much more venomous. Helbigius, however, who resided for many years in the east, assures us, that he was often stung by the scorpion, and never received any material injury from the wound: a painful tumor generally ensued; but he always cured it by rubbing the part with a piece of iron or stone, as he had seen the Indians practise before him, until the flesh became insensible. Seba, Moore, and Bosman, however, give a very different account of the scorpion's malignity: and assert, that, unless speedily relieved, the wound becomes fatal.

It is certain, that no animal in the creation seems endued with such an irascible nature. They have often been seen, when taken and put into a place of security, to exert all their rage against the sides of the glass-vessel that contained them. They will attempt to sting a stick when put near them; and attack a mouse or a frog, while those animals are far from offering any injury. Maupertius put three scorpions and a mouse into the same vessel together, and they soon stung the little animal in different places. The mouse, thus assaulted, stood for some time upon the defensive, and at last killed them all, one after another. He tried this experiment, in order to see whether the mouse, after it had killed, would eat the scorpions; but the little quadruped seemed satisfied with the victory, and even survived the severity of the wounds it had received. Wolkamer tried the courage of the scorpion against the large spider, and inclosed several of both kinds in glass vessels for that purpose. The success of this combat was very remarkable. The spider at first used all its efforts to intangle the scorpion in its web, which it immediately began spinning; but the scorpion rescued itself from the danger, by stinging its adversary to death: it soon after cut off, with its claws, all the legs of the spider, and then sucked all the internal parts at its leisure.—If the scorpion's skin had not been so hard, Wolkamer is of opinion that the spider would have obtained the victory; for he had often seen one of these spiders destroy a toad.

The fierce spirit of this animal is equally dangerous to its own species; for scorpions are the cruellest enemies to each other. Maupertius put about 100 of them together in the same glass; and they scarce came into contact when they began to exert all their rage in mutual destruction: there was nothing to be seen but one universal carnage, without any distinction of age or sex; so that in a few days there remained only 14, which had killed and devoured all the rest.

But their unnatural malignity is still more apparent in their cruelty to their offspring. He inclosed a female scorpion, big with young, in a glass vessel, and she was seen to devour them as fast as they were excluded: there was but one only of the number that escaped the general destruction, by taking refuge on the back of its parent; and this soon after revenged the cause of its brethren, by killing the old one in its turn.

Such is the terrible and unrelenting nature of this insect, which neither the bonds of society nor of nature can reclaim: it is even asserted, that, when driven to an extremity, the scorpion will often destroy itself. The following experiment was ineffectually tried by Maupertius: "But," says Mr Goldsmith, "I am so well assured of it by many eye-witnesses, who have seen it both in Italy and America, that I have no doubt remaining of its veracity. A scorpion, newly caught


Scolopax Gallinago
or Snipe.
Scolopax Phaeopus
or Whimbrel
Scolopax Arquata
or Curlew.
Scolopax Rusticola
or Woodcock
Scorpion.
Fig. 1.
Scolopendra Morsitans.
Sciurus Cinereus
or Grey Squirrel
Fig. 4.
Flying
Squirrel.
in a sitting posture
Fig. 3.
Sciurus Volans
or Flying Squirrel.
in a flying posture.
Fig. 2.
Sciurus Sagitta
or Sailing Squirrel.

Scorpio, Scorpiurus.

is placed in the midſt of a circle of burning charcoal, and thus an egreſs prevented on every ſide: the ſcorpion, as I am aſſured, runs for about a minute round the circle, in hopes of eſcaping: but finding that impoſſible, it ſtings itſelf on the back of the head; and in this manner the undaunted ſuicide inſtantly expires."

It is happy for mankind that theſe animals are thus deſtructive to each other; ſince otherwiſe they would multiply in ſo great a degree as to render ſome countries uninhabitable. The male and female of this inſect are very eaſily diſtinguiſhable; the male being ſmaller and leſs hairy. The female brings forth her young alive, and perfect in their kind. Redi having bought a quantity of ſcorpions, ſelected the females, which, by their ſize and roughneſs, were eaſily diſtinguiſhable from the reſt, and putting them in ſeparate glaſs veſſels, he kept them for ſome days without food. In about five days one of them brought forth 38 young ones, well-ſhaped, and of a milk-white colour, which changed every day more and more into a dark ruſty hue. Another female, in a different veſſel, brought forth 27 of the ſame colour; and the day following the young ones ſeemed all fixed to the back and belly of the female. For near a fortnight all theſe continued alive and well: but afterwards ſome of them died daily; until, in about a month, they all died except two.

Were it worth the trouble, theſe animals might be kept living as long as curioſity ſhould think proper. Their chief food is worms and inſects; and upon a proper ſupply of theſe, their lives might be lengthened to their natural extent. How long that may be, we are not told; but if we may argue from analogy, it cannot be leſs than ſeven or eight years; and perhaps, in the larger kind, double that duration. As they have ſomewhat the form of the lobſter, ſo they reſemble that animal in caſting their ſhell, or more properly their ſkin; ſince it is ſofter by far than the covering of the lobſter, and ſet with hairs, which grow from it in great abundance, particularly at the joinings. The young lie in the womb of the parent, each covered up in its own membrane, to the number of 40 or 50, and united to each other by an oblong thread, ſo as to exhibit altogether the form of a chaplet.

Such is the manner in which the common ſcorpion produces its young: but there is a ſcorpion of America produced from the egg, in the manner of the ſpider. The eggs are no longer than pins points; and they are depoſited in a web, which they ſpin from their bodies, and carry about with them, till they are hatched. As ſoon as the young ones are excluded from the ſhell, they get upon the back of the parent, who turns her tail over them, and defends them with her ſting. It ſeems probable, therefore, that captivity produces that unnatural diſpoſition in the ſcorpion which induces it to deſtroy its young; ſince, at liberty, it is found to protect them with ſuch unceaſing aſſiduity. For the various modes of preventing the fatal conſequences of the bites of theſe and other noxious animals, we refer to Moſeley's treatiſe above quoted.

SCORPIO, *Scorpion*, in aſtronomy, the eighth ſign of the zodiac denoted by the character ♏. See ASTRONOMY.

Scorpion Fly. See PANORPA.

SCORPIURUS, CATERPILLARS, in botany: A genus of the decandria order, belonging to the diadelphia claſs of plants; and in the natural method ranking under the 32d order, *Papilionaceæ*. The legumen is contracted by incitions on the inſide betwixt every two ſeeds, revoluted round.

Scorzonera, Scot.

There are four ſpecies; the moſt remarkable of which is the vermiculata, a native of Italy and Spain. It is an annual plant, with trailing herbaceous ſtalks, which at each joint have a ſpatular-ſhaped leaf with a long foot-ſtalk. From the wings of the leaves come out the foot-ſtalks of the flowers, which ſuſtain at the top one yellow butterfly flower, ſucceeded by a thick twiſted pod having the ſize and appearance of a larger caterpillar, from whence it had this title. This has long been preſerved in the gardens of this country, more on account of its odd ſhape than for any great beauty. It is propagated by ſowing the ſeeds on a bed of light earth; and when the plants come up, they muſt be kept free from weeds and thinned, ſo that there may be a foot diſtance between them.

SCORZONERA, VIPER-GRASS, in botany: A genus of the polygamia æqualis order, belonging to the ſyngeneſia claſs of plants; and in the natural method ranking under the 49th order, *Compoſitæ*. The receptacle is naked; the pappus plumy; the calyx imbricated, with ſcales membranaceous on their margins.

The moſt remarkable ſpecies is the hiſpanica, or common ſcorzonera, which is cultivated in the gardens of this country, both for culinary and medicinal purpoſes. The root is carrot-ſhaped, about the thickneſs of a finger, covered with a dark brown ſkin, is white within, and has a milky juice. The ſtalk riſes three feet high, is ſmooth, branching at the top, and garniſhed with a few narrow leaves, whoſe baſe half embrace the ſtalk. The flowers are of a bright yellow colour, and terminate the ſtalks in ſcaly empalements compoſed of many narrow tongue-ſhaped hermaphrodite florets lying imbricatim over each other like the ſcales of fiſh, and are of a bright yellow colour. After theſe are decayed, the germen, which ſits in the common empalements, turns to oblong cornered ſeeds, having a roundiſh ball of feathered down at the top. This plant is propagated by ſeeds; and muſt be carefully thinned and kept free from weeds, otherwiſe the plants will be weak.

The roots of ſcorzonera were formerly much celebrated for their alexipharmic virtues, and for throwing out the ſmall-pox; but have now almoſt entirely loſt their character: however, as they abound with an acrid juice, they may ſometimes be of uſe for ſtrengthening the viſcera, and promoting the fluid ſecretions.

SCOT, a cuſtomary contribution laid upon all ſubjects, according to their abilities. Whoever were aſſeſſed in any ſum, though not in equal proportions, were ſaid to pay ſcot and lot.

SCOT (Michael) of Balwirie, a learned Scottiſh author of the 13th century. This ſingular man made the tour of France and Germany; and was received with ſome diſtinction at the court of the emperor Frederic II. Having travelled enough to gratify his curioſity or his vanity, he returned to Scotland, and gave himſelf up to ſtudy and contemplation. He was ſkilled in languages; and, conſidering the age in which he lived, was no mean proficient in philoſophy, mathematics, and medicine. He tranſlated into Latin from the Arabic, the hiſtory of animals by the celebrated phy-

ſician Avicenna. He publiſhed the whole works of Ariſtotle, with notes, and affected much to reaſon on the principles of that great philoſopher. He wrote a book concerning *The Secrets of Nature*, in which he treats of generation, phyſiognomy, and the ſigns by which we judge of the temperaments of men and women. We have alſo a tract of his *On the Nature of the Sun and Moon* He there ſpeaks of the *grand operation*, as it is termed by alchymiſts, and is exceedingly ſolicitous about the *projected powder*, or the *philoſopher's ſtone*. He likewiſe publiſhed what he calls *Menſa Philoſophica*, a treatiſe replete with aſtrology and chiromancy. He was much admired in his day, and was even ſuſpected of magic; and had Roger Bacon and Cornelius Agrippa for his panegyriſts.

SCOT (Reginald), a judicious writer in the 16th century, was the younger ſon of Sir John Scot of Scot's-hall, near Smeethe in Kent. He ſtudied at Hart-hall in the univerſity of Oxford; after which he retired to Smeethe, where he lived a ſtudious life, and died in 1599. He publiſhed, *The perfect Platform of a Hop-garden*; and a book intitled, *The Diſcovery of Witchcraft*; in which he ſhowed that all the relations concerning magicians and witches are chimerical. This work was not only cenſured by king James I. in his *Dæmonology*, but by ſeveral eminent divines; and all the copies of it that could be found were burnt.

SCOTAL, or SCOTALE, is where any officer of a foreſt keeps an ale-houſe within the foreſt, by colour of his office, making people come to his houſe, and there ſpend their money for fear of his diſpleaſure. We find it mentioned in the charter of the foreſt, cap. 8. "Nullus forreſtarius faciat *Scotallas*, vel garbas colligat, vel aliquam collectam faciat," &c *Manwood*, 216. —The word is compounded of *ſcot* and *ale*, and by tranſpoſition of the words is otherwiſe called *aleſhot*.

SCOTER. See ANAS, n° 6.

NOVA SCOTIA, or *New Scotland*, one of the Britiſh ſettlements in North America, ſituated between 43° and 49° north latitude, and between 60° and 67° weſt longitude, is bounded by the river St Laurence on the north; by the gulph of St Laurence and the Atlantic ocean on the eaſt; by the ſame ocean on the ſouth; and by Canada and New England on the weſt.—In the year 1784, this province was divided into two governments. The province and government now ſtyled *New Brunſwick* is bounded on the weſtward of the mouth of the river St Croix, by the ſaid river to its ſource, and by a line drawn due north from thence to the ſouthern boundary of the province of Quebec, to the northward by the ſaid boundary as far as the weſtern extremity of the Bay de Chaleurs, to the eaſtward by the ſaid bay to the gulph of St Laurence to the bay called *Bay Verte*, to the ſouth by a line in the centre of the Bay of Fundy, from the river St Croix aforeſaid, to the mouth of the Muſquat river, by the ſaid river to its ſource, and from thence by a due eaſt line acroſs the Iſthmus into the Bay Verte, to join the eaſtern lot above deſcribed, including all iſlands within ſix leagues of the coaſt.

The chief rivers are, the river of St Laurence, which forms the northern boundary. The rivers Riſgouche and Nipiſiguit run from weſt to eaſt, and fall into the bay of St Laurence. The rivers of St John, Paſſamaquoddy, Penobſcot, and St Croix, which run from north to ſouth, fall into Fundy Bay, or the ſea a little to the eaſtward of it.

The ſeas adjoining to it are, the Atlantic ocean, Fundy Bay, and the gulph of St Laurence. The leſſer bays are, Chenigto and Green Bay upon the iſthmus which joins the north part of Nova Scotia to the ſouth; and the Bay of Chaleurs on the north-eaſt; the Bay of Chedibucto on the ſouth-eaſt; the Bay of the Iſlands, the Ports of Bart, Chebucto, Proſper, St Margaret, La Heve, port Maltois, port Ryſignol, port Vert, and port Joly, on the ſouth; port La Tour on the ſouth-eaſt; port St Mary, Anapolis, and Minas on the ſouth ſide of Fundy Bay, and port Roſeway, now the moſt populous of all.—The chief capes are, Cape Portage, Ecoumenac, Tourmentin, Cape Port, and Epis, on the eaſt; Cape Fogerie and Cape Canceau on the ſouth-eaſt; Cape Blanco, Cape Vert, Cape Theodore, Cape Dore, Cape La Heve, and Cape Negro, on the ſouth; Cape Sable and Cape Fourche on the ſouth-weſt.—The lakes are very numerous, but have not yet received particular names.

The face of the country, when viewed at a diſtance, preſents a pleaſingly variegated appearance of hills and valleys, with ſcarcely any thing like mountains to interrupt the proſpect, eſpecially near the ſea. A nearer approach diſcovers thoſe ſublime and beautiful ſcenes which are ſo far ſuperior to the gaudy embelliſhments of art. Immenſe foreſts, formed of the talleſt trees, the growth of ages, and reaching almoſt to the clouds, everywhere cover and adorn the land: Their leaves falling in autumn, add continually to that cruſt of moſs, vegetables, and decaying wood, that has for many centuries been accumulating; whilſt the rays of the ſun, unable to pierce the thick ſhade which everywhere covers the ground, leaves it in a perpetual ſtate of damp and rottenneſs; a circumſtance which contributes, in no ſmall degree, to increaſe the ſharpneſs of the air in winter.

The clouds, flying over the higher grounds, which are covered in every direction with one vaſt foreſt, and arreſted by the attraction of the woods, fill the country with water. Every rock has a ſpring, and every ſpring cauſes a ſwamp or moraſs, of greater or leſs extent in proportion to its cauſe: hence it is, that travelling becomes almoſt impracticable in ſummer, and is ſeldom attempted, but in the fall of the year, when winter begins to ſet in, and the ground is already frozen.

The land throughout the peninſula is in no part mountainous, but frequently riſes into hills of gradual aſcent, everywhere clothed with wood. From theſe ariſe innumerable ſprings and rivulets, which not only fertilize and adorn the country, but have formed, in the midſt of it, a large lake or piece of freſh water, which is of various depths, and of which, however, little more is known, than that it has upon its borders very large tracts of meadow-land highly improveable. That part of the province which is beyond the Bay of Fundy, and extends to the river St Laurence, riſes alſo gradually as we advance from the ſea quite to Canada, but is, however, hardly anywhere mountainous. Its lands are for the moſt part very rich, particularly at a diſtance from the ſea; and its woods abound with the hardeſt and loftieſt trees.

Though this country, like Canada, is ſubject to long and

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and ſevere winters, ſucceeded by ſudden and violent heats, often much greater than what are felt in the ſame latitudes in Europe, yet it cannot be accounted an unhealthy climate. The air in general in winter is very ſharp, froſty, and dry; the ſky ſerene and unclouded, by which every kind of exercile adapted to the ſeaſon is rendered pleaſant and agreeable. The fogs are frequent near the ſea, but ſeldom ſpread themſelves to any diſtance in land.

The winter commonly breaks up with heavy rains, and the inhabitants experience hardly any of the delights of the ſpring, which in England is accounted the moſt agreeable ſeaſon of the year. From a lifeleſs and dreary appearance, and the gloomy ſcenes of winter wrapped around the vegetable world, the country throws off its diſguſtful attire, and in a few days exhibits a grand and pleaſant proſpect; the vegetation being inconceivably rapid, nature paſſes ſuddenly from one extreme to another, in a manner utterly unknown to countries accuſtomed to a gradual progreſſion of ſeaſons. And, ſtrange as it may appear, it is an acknowledged fact, a fact which furniſhes a certain proof of the purity of the air, that theſe ſudden changes ſeldom, if ever, affect the health of ſtrangers or Europeans.

In this country agriculture has yet made but ſmall progreſs. Nova Scotia is almoſt a continued foreſt, producing every kind of wood which grows in the neighbouring provinces of New England. Four fifths of all the lands in the province are covered with pines, which are valuable not only for furniſhing maſts, ſpars, lumber for the ſugar plantations, and timber for building, but for yielding tar, pitch, and turpentine, commodities which are all procured from this uſeful tree, and with which the mother-country may in a few years eaſily be ſupplied.

All the various ſpecies of birch, beech, and maple, and ſeveral ſorts of ſpruce, are found in all parts in great abundance; as alſo numerous herbs and plants, either not common to, or not known in, England. Amongſt theſe none is more plentiful than ſarſaparilla, and a plant whoſe root reſembles rhubarb in colour, taſte, and effects; likewiſe the Indian or mountain tea, and maiden-hair, an herb much in repute for the ſame purpoſe, with ſhrubs producing ſtrawberries, raſpberries, and many other pleaſant fruits, with which the woods in ſummer are well ſtored: Of theſe wild productions the cherries are beſt, though ſmaller than ours, and growing in bunches ſomewhat reſembling grapes. The ſaſſafras tree grows plentifully in common with others; but amongſt them none is more uſeful to the inhabitants than a ſpecies of maple, diſtinguiſhed by the name of the *ſugar tree*, as affording a conſiderable quantity of that valuable ingredient. See SUGAR.

Amongſt the natural productions of Nova Scotia, it is neceſſary to enumerate their iron-ore, which is ſuppoſed equally good with that found in any part of America.

Lime-ſtone is likewiſe found in many places; it is extremely good, and is now much uſed for building: independent of which, it gives the farmers and landholders a great advantage for improving the ground, as it is found by experience to be one of the moſt approved things in the world for that purpoſe.

Several of the uſeful and moſt common European fruits have been planted in many places; ſo that the province now produces great quantities of apples, ſome pears, and a few plums, which are all good of their kind, eſpecially the former. The ſmaller fruits, ſuch as currants, gooſeberries, &c. grow to as great perfection as in Europe; and the ſame may be ſaid of all the common and uſeful kinds of garden plants. Among theſe their potatoes have the preference, as being the moſt ſerviceable in a country abounding with fiſh; and indeed they are not to be exceeded in goodneſs by any in the world. The maize, or Indian corn, is a native of much warmer climates; and, though planted here, never arrives at more than two-thirds of its natural bigneſs; a defect which ariſes as well from the ſhortneſs of the ſummer as the gravelly nature of the ſoil. Tobacco may likewiſe be cultivated with eaſe in Nova Scotia, as it is already everywhere in Canada, from Lake Champlain to the iſle of Orleans, for the purpoſe of internal conſumption.

This country is not deficient in the animal productions of the neighbouring provinces, particularly deer, beavers, and otters. Wild fowl, and all manner of game, and many kinds of European fowls and quadrupeds, have from time to time been brought into it and thrive well. At the cloſe of March the fiſh begin to ſpawn, when they enter the rivers in ſuch ſhoals as are incredible. Herrings come up in April, and the ſturgeon and ſalmon in May. But the moſt valuable appendage of New Scotland is the Cape Sable coaſt, along which is one continued range of cod-fiſhing banks and excellent harbours. This fiſhery employs a great number of men, in ſome ſeaſons not leſs than 10,000, when 120,000 quintals will be caught, of which 40,000 may be exported. Theſe, at the loweſt price, muſt bring into the colony L. 26,000 Sterling, either in caſh or in commodities neceſſary to the inhabitants.

Notwithſtanding the comparatively uninviting appearance of this country, it was here that ſome of the firſt European ſettlements were made. The firſt grant of lands in it was given by James I. to his ſecretary Sir William Alexander, from whom it had the name of *Nova Scotia* or *New Scotland*. Since that period it has frequently changed hands from one private proprietor to another, and from the French to the Engliſh nation backward and forward.

It was in 1604 that the French firſt ſettled in Nova Scotia, to which they gave the name of *Acadia*. Inſtead of fixing towards the eaſt of the peninſula, where they would have had larger ſeas, an eaſy navigation, and plenty of cod, they choſe a ſmall bay, afterwards called French Bay, which had none of theſe advantages. It has been ſaid, that they were invited by the beauty of Port Royal, where a thouſand ſhips may ride in ſafety from every wind, where there is an excellent bottom, and at all times four or five fathoms of water, and eighteen at the entrance. It is more probable that the founders of this colony were led to choſe this ſituation, from its vicinity to the countries abounding in furs, of which the excluſive trade had been granted to them. This conjecture is confirmed by the following circumſtance: that both the firſt monopolizers, and thoſe who ſucceeded them, took the utmoſt pains to divert the attention of their countrymen, whom an unſettled diſpoſition, or neceſſity, brought into theſe regions, from the clearing of the woods, the breeding of cattle, fiſhing, and every kind of culture; choofing rather to engage

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engage the induſtry of theſe adventurers in hunting or in trading with the ſavages.

This colony was yet in its infancy when the ſettlement, which has ſince become ſo famous under the name of *New England*, was firſt eſtabliſhed in its neighbourhood. The rapid ſucceſs of the plantations in this new colony did not much attract the notice of the French. This kind of proſperity did not excite any jealouſy between the two nations. But when they began to ſuſpect that there was likely to be a competition for the beaver trade and furs, they endeavoured to ſecure to themſelves the ſole property of it, and were unfortunate enough to ſucceed.

At their firſt arrival in Acadia, they had found the peninſula, as well as the foreſts of the neighbouring continent, peopled with ſmall ſavage nations, who went under the general name of *Abenakies*. Though equally fond of war as other ſavage nations, they were more ſociable in their manners. The miſſionaries eaſily inſinuating themſelves among them, had ſo far inculcated their tenets, as to make enthuſiaſts of them. At the ſame time that they taught them their religion, they inſpired them with that hatred which they themſelves entertained for the Engliſh name. This fundamental article of their new worſhip, being that which made the ſtrongeſt impreſſion on their ſenſes, and the only one that favoured their paſſion for war, they adopted it with all the rage that was natural to them. They not only refuſed to make any kind of exchange with the Engliſh, but alſo frequently diſturbed and ravaged the frontiers of that nation.

This produced perpetual hoſtilities between the New Englanders and the French ſettlers in Acadia, till that province was, at the peace of Utrecht, for ever ceded to the Engliſh, who ſeemed not for a long time to diſcover the value of their new acquiſition. They reſtored to it its ancient name of *Nova Scotia*; and having built a ſlight fortification at Port-Royal, which they called *Annapolis* in honour of Queen Anne, they contented themſelves with putting a very ſmall garriſon into it. In proceſs of time, however, the importance of Nova Scotia to the commerce of Great Britain began to be perceived; and at the peace of 1749, the miniſtry offered particular advantages to all perſons who choſe to go over and ſettle in Acadia. Every ſoldier, ſailor, and workman, was to have 50 acres of land for himſelf, and ten for every perſon he carried over in his family. All non-commiſſioned officers were allowed 80 for themſelves, and 15 for their wives and children; enſigns 200; lieutenants 300; captains 400; and all officers of a higher rank 600; together with 30 for each of their dependents. The land was to be tax free for the firſt ten years, and never to pay above one livre two ſols ſix deniers* for fifty acres. Beſide this the government engaged to advance or reimburſe the expences of paſſage, to build houſes, to furniſh all the neceſſary inſtruments for fiſhery or agriculture, and to defray the expences of ſubſiſtence for the firſt year. Theſe encouragements determined 3750 perſons, in the month of May 1749, to go to America, in hopes of bettering their fortune.

* About 1s Sterling.

Thus encouraged, the province of Nova Scotia began to flouriſh, though in 1769 it ſent out only 14 veſſels and 148 boats, which together amounted to 7324 tons, and received 22 veſſels and 120 boats, which together made up 7006 tons. They conſtructed three ſloops, which did not exceed 110 tons burden. Their exportation for Great Britain and for the other parts of the globe did not amount to more than 729,850 livres 12 ſols 9 deniers †. Continuing, however, true to its allegiance when the other colonies threw off the dominion of Great Britain, it has now become a place of great conſequence both to the mother-country and the Weſt Indies. Its ſhipping and ſeamen are rapidly increaſing, as well as its produce, which affords the pleaſing proſpect of being able to ſupply itſelf with all the neceſſaries of life. The number of perſons who have abandoned their habitations in the more ſouthern provinces, and ſettled either there or in Canada, cannot be eſtimated, by the moſt moderate calculation, at leſs than 80,000; and it is without doubt the moſt convenient in point of ſituation of any province in America for a maritime power of Europe to be poſſeſſed of.

† About L. 30,410, 8 s. 10 d. Sterling.

Scotia, Scotland.

SCOTIA, in architecture, a ſemicircular cavity or channel between the tores in the baſes of columns.

SCOTISTS, a ſect of ſchool-divines and philoſophers, thus called from their founder *J. Duns Scotus*, a Scottiſh cordelier, who maintained the immaculate conception of the virgin, or that ſhe was born without original ſin, in oppoſition to Thomas Aquinas and the Thomiſts.

As to philoſophy, the Scotiſts were, like the Thomiſts, Peripatetics (ſee PERIPATETICS); only diſtinguiſhed by this, that in each being, as many different qualities as it had, ſo many different formalities did they diſtinguiſh; all diſtinct from the body itſelf, and making as it were ſo many different entities; only theſe were metaphyſical, and as it were ſuperadded to the being. The Scotiſts and Thomiſts likewiſe diſagreed about the nature of the divine co-operation with the human will, the meaſure of divine grace that is neceſſary to ſalvation, and other abſtruſe and minute queſtions, which it is needleſs to enumerate.

SCOTLAND, the country of the Scots, or that part of Great Britain lying to the north of the Tweed; is ſituated between the 54th and 59th degrees of north latitude, and extends in length about 278 miles, and in ſome places near 180 in breadth; containing an area of 27,794 miles. On the ſouth it is bounded by England; on the north, eaſt, and weſt, by the Deucaledonian, German, and Iriſh ſeas.

I. Origin of the name.

It is extremely difficult to give any ſatisfactory account of the origin of the appellation of *Scots*, from which the country has derived its name. It has puzzled the moſt eminent antiquaries, whoſe conjectures ſerve rather to perplex than to clear up the difficulty. Nor is this to be wondered at, when Varro and Dionyſius could not agree about the etymon of *Italia*, nor Plutarch and Solinus about that of *Rome*. All that we know with any degree of certainty, concerning the appellation of *Scot*, amounts to this—That it was at firſt a term of reproach, and conſequently framed by enemies, rather than aſſumed by the nation diſtinguiſhed by that name. The Highlanders, who were the genuine deſcendants of the ancient Scots, are abſolutely ſtrangers to the name, and have been ſo from the beginning of time. All thoſe who ſpeak the Gaelic language call themſelves *Albanich* or *Gael*, and their country *Alba* or *Gaeldochd*.

The Picts, who poſſeſſed originally the northern and eaſtern,


Scotland.
NORTHERN OCEAN
ATLANTIC OCEAN
BRITISH OCEAN
IRELAND
ENGLAND
WESTERN ISLES
SHETLAND ISLES
Orkney Islands
Mainland
British Statute Miles
Harris
Lewis
Skye
Mull
Jura
Islay
Arran
Bute
Cantire
Mull of Cantire
Mull of Galloway
Rathlin I.
Fair Head
Solway Firth
Clyde Firth
Tay Firth
Forth
Moray Firth
Pentland Firth
Dunnet Head
Duncansby Head
Cape Wrath
Ord Head
Kinnaird Head
Fraserburg
Peterhead
Aberdeen
Montrose
Red Head
Berwick
Dunbar
St Abb's Head
Newcastle
Durham
Carlisle
Dumfries
Edinburgh
Glasgow
Perth
Dundee
Inverness
Aberdeen
Stirling
Dumbarton
Ayr
Kilmarnock
Paisley
Greenock
Campbeltown
Oban
Fort William
Inverary
Tobermory
Stornoway
Lerwick
Kirkwall
Wick
Thurso
Tarbat Ness
Duncansby Head
Sumburgh Head
Dunrosness
Whalsay
Papa
Fetlar
Yell
Unst
Mainland
Blamel Sd.
Yell Sound
Bell
Cull
Fetlar
S. Magnus B.
Fitfa
Papa
Whalsay
SHETLAND ISLES
Mainland
Galloway
Brassa
Bressick
Dunrosness
Sumburgh Head
Lat from London 8 7 6 5 4 3 2 1 0
59 58 57 56 55
XXXVI Minutes of Time West from London XXIV

Scotland.

eastern, and in a latter period also the more southern, division of North Britain, were at first more powerful than the Caledonians of the west. It is therefore probable, that the Picts, from a principle of malevolence and pride, were ready to traduce and ridicule their weaker neighbours of Argyle. These two nations spoke the same language, the Gaelic. In that language *Scot*, or *Scode*, signifies a corner or small division of a country. Accordingly, a corner of north Britain is the very name which Giraldus Cambrensis gives the little kingdom of Argyle, which the six sons of Muredus king of Ulster were said, according to his information, to have erected in Scotland. *Scot* in Gaelic is much the same with *little* or *contemptible* in English; and *Scotlan*, literally speaking, signifies a *small flock*; metaphorically, it stands for a small body of men. (*Dr Macpherson's Dissert.*)

Others observe, that in the same language the word *Scuit* signifies a *wanderer*, and suppose that this may have been the origin of the name of *Scot*; a conjecture which they think is countenanced by a passage in Ammianus Marcellinus (l. xxvii.), who characterizes the men by the epithet of *roaming*; "per diversa vagantes." (*Mr Macpherson. and Mr Whitaker*).

All that we can say is, that for some one of the reasons couched under the above disparaging epithets, their malicious or sneering neighbours, the Picts or the Britons, may have given the appellation of *Scots* to the ancestors of the Scottish nation.

At what time the inhabitants of the west of Scotland came to be distinguished by this name is uncertain. Porphyrius the philosopher is the first who mentions them, about the year of the Christian era 267; and towards the middle of the 4th century we find them mentioned with other British nations by Am. Marcellinus, in the passage above referred to.

2 And of the people.

The origin of the Scots has been warmly disputed by many antiquaries of note; particularly by Mr Macpherson and Mr Whitaker. The first contends, that they are of Caledonian, the latter, that they are of Irish extraction. Each supports his position with such arguments and authorities, that an impartial inquirer is almost at a loss which of their opinions he ought to espouse. What appears most probable is, that they are both partly in the right and partly in the wrong. —The Scots seem to have been originally descended from Britons of the south, or from Caledonians, who being pressed forward by new colonies from Gaul, till they came to the western shore of Britain, passed over from thence into Ireland, probably about 100 years before the Christian era. About the year of Christ 320, they returned again into Britain; or at least a large colony of them, under the conduct of Fergus, and settled on the western coasts of Caledonia, from whence they had formerly migrated. As early as the year 342, we find them associated with the Picts in their expeditions to the Roman province; and for 90 or 100 years after, their ravages are frequently mentioned by the Roman and British writers. (*Whitaker's hist. of the Britons*, 284).

3 Extent of territory.

The territory of the ancient Scots, before the annexation of Pictavia, comprehended all that side of Caledonia which lies along the north and western ocean, from the frith of Clyde to the Orkneys. Towards the east, their dominions were divided from the Pictish territories by those high mountains which run from Dumbarton to the frith of Tain.—In process [illegible] the Scots, under the reign of Kenneth the son of Alpin, became so powerful as to subdue entirely their neighbours the Picts, and gave their own denomination to all Caledonia, Pictavia, and Valentia; all which are still comprehended under the general name of Scotland.

Like those of all other nations, the historians of Scotland assume too great an antiquity for their countrymen; however, they are much less extravagant in this respect than many others. By them the reign of Fergus, the first Scots monarch, is placed in 330 B. C. He was the son of Ferchard an Irish prince; and is said to have been called into Scotland by the Caledonians, to assist them against the southern Britons, with whom they were then at war. Having landed on one of the Ebudæ or western isles, he had a conference with the Caledonians, whose language and manners he found to be the same with those of his countrymen. Having then landed in Scotland, and taken the field at the head of his new allies, he engaged the Britons under their king Coilus. Victory declared in favour of the Scots; Coilus was defeated and killed; and from him the province of Kyle first received its name. After this Fergus was declared king of the Scots, with the solemnity of an oath. But he did not long enjoy his new dignity: for having been recalled to Ireland to quiet some commotions there, he was drowned, by a sudden tempest, on his return, at a place in Ireland called from him *Knock-Fergus*, or *Carrick-Fergus*; *i. e.* Fergus's Rock.

4 Fergus the first king of Scotland.

5 Collateral succession in use among the Scots.

Fergus was succeeded by his brother Feritharis, to the prejudice of his two sons Ferlegus and Mainus. This, we are told by the ancient Scottish writers, was done in conformity to a law, by which it was ordained, that whilst the children of their kings were infants, one of their relations who was reckoned the most fit for the government should be raised to the throne, but that after his death the sovereignty should return to the sons of the former king. This was the case at present; however, Ferlegus, impatient for the crown, made a formal demand of it from his uncle. The dispute being referred to an assembly of the states, Feritharis was confirmed on the throne; and Ferlegus would have been condemned for sedition, had not his uncle interposed. However, he was imprisoned; but having made his escape; he fled first to the Picts, and then to the Britons, in order to excite them against Feritharis. With both he failed in accomplishing his purpose: but, in the mean time, his uncle being stabbed in his bed, the suspicion fell upon Ferlegus, who was thereupon set aside from the succession, and died in obscurity, the throne being conferred upon his brother Mainus.

The reigns of Mainus, Dornadil, and Nothat, afford nothing remarkable, excepting that Dornadil, who was a great hunter, instituted the laws of hunting in this country. Nothat was killed in a battle with Reuther his nephew; upon which the latter was immediately invested with the sovereignty. A bloody war ensued, in which both parties were reduced to the last extremity, and glad at length to conclude a peace. The fate of Reuther is not known; but it is generally supposed that he ended his life in the year 187 B. C.

The reigns of Reutha, Thereus, Jasina, and Finnan, afford

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afford no remarkable transactions, excepting that under the last we find the first beginnings of the Scottish parliament; as he enacted, that kings should do nothing without the consent of their grand council.—After him followed Durstus, Even, and Gillus, whose reigns afford nothing of consequence. Even II. the nephew of Finnan, who succeeded Gillus, is said to have built the towns of Innerlochy and Invernefs. He overcame Belus king of the Orkneys, who had invaded Scotland; and was succeeded by his son Eder, in whose time Julius Cæsar invaded the southern parts of this island. Eder is said to have assisted the Britons against the common enemy. He was succeeded, after a reign of 48 years, by his son Even III. who is represented as a monster of cruelty and lust. Not content with having 100 noble concubines of his own, he made a law that a man might marry as many wives as he could maintain; and that the king should have the first night with every noble bride, and the nobles the like with the daughters of their tenants. Nor was he less remarkable for his cruelty and rapaciousness, which at last occasioned a rebellion; and Even was dethroned, imprisoned, and put to death.

6 A scandalous law concerning marriages.

We meet with nothing memorable in the history of Scotland from this time to that of Agricola, excepting that the famous Caractacus, who was carried prisoner to Rome, is said to have been one of the Scottish monarchs; which, however, seems not very probable, as the Romans in his time had not penetrated near so far as Scotland. The invasion of Agricola happened during the reign of Corbred, called by the Roman historians *Galgacus*. Agricola having completed the conquest of the southern parts, and in a great measure civilized the inhabitants, formed a like plan with regard to Scotland. It is probable, that at this time the Caledonians or Scots were rendered more formidable than ever they had been, by the accession of great numbers from the south; for though the Romans had civilized the greatest part, it cannot be doubted that many of those savage warriors, disdaining the pleasures of a peaceable life, would retire to the northward, where the martial disposition of the Scots would better suit their inclination. The utmost efforts of valour, however, were not proof against the discipline of the Roman troops, and the experience of their commander. In the third year Agricola had penetrated as far as the river Tay; but the particulars of his progress are not recorded. The following year he built a line of forts between the friths of Forth and Clyde, to exclude the Caledonians from the southern parts of the island; and the year after, he subdued those parts which lay to the south and west of his forts, namely, the counties of Galloway, Cantyre, and Argyle, which at that time were inhabited by a people called *Cangi*, though some historians place these as far south as Cheshire in England, and the north part of Wales. This supposition, however, can scarcely be admitted, when we consider that Tacitus expressly informs us, that the people whom Agricola conquered had never before been known to the Romans

7 Invasion of Scotland by Agricola.

Agricola still pursued the same prudent measures by which he had already secured the possession of such a large tract of country, that is, advancing but slowly, and building forts as he advanced, in order to keep the people in obedience. The Scots, though commanded by their king, who is said to have been well acquainted with the manner of fighting and discipline of the Romans, were yet obliged to retreat; but at last, finding that the enemy made such progress as endangered the subjugation of the whole country, he resolved to cut off their communication with the southern parts, and likewise to prevent all possibility of a retreat by sea. Agricola, though solicited by some of his officers, refused to retreat; but divided his troops into three bodies, having a communication with each other. Upon this, Galgacus resolved to attack the weakest of the three, which consisted only of the ninth legion, and lay at that time, as is said, at a place called *Lochore*, about two miles from Loch-Leven in Fife. The attack was made in the night: and as the Romans were both unprepared and inferior in number, the Scots penetrated into the heart of their camp, and were making a great slaughter, when Agricola detached some light-armed troops to their assistance; by whom the Caledonians in their turn were routed, and forced to fly to the marshes and inaccessible places, where the enemy could not follow them.

This engagement has been magnified by the Roman historians into a victory, though it can scarce be admitted from the testimonies of other historians. The Romans, however, certainly advanced very considerably, and the Scots as constantly retreated, till they came to the foot of the Grampian mountains, where the Caledonians resolved to make their last stand. In the eighth year of the war, Agricola advanced to the foot of the mountains, where he found the enemy ready to receive him. Tacitus has given us a speech of Galgacus, which he has undoubtedly fabricated for him, in which he sets forth the aspiring disposition of the Romans, and encourages his countrymen to defend themselves vigorously, as knowing that every thing valuable was at stake. A desperate engagement accordingly ensued. In the beginning, the Britons had the advantage, by the dexterous management of their bucklers: but Agricola having ordered three Tungrian and two Batavian cohorts, armed with short swords, and embossed bucklers terminating in a point, to attack the Scots, who were armed with long swords, the latter soon found these weapons useless in a close encounter; and as their bucklers only covered a small part of their bodies, they were easily cut in pieces by their adversaries. The most forward of their cavalry and charioteers fell back upon their infantry, and disordered the centre: but, the Britons endeavouring to out-flank their enemies, the Roman general opposed them with his horse; and the Caledonians were at last routed with great slaughter, and forced to fly into the woods, whither the Romans pursued with so little caution, that numbers of them were cut off. Agricola, however, having ordered his troops to proceed more regularly, prevented the Scots from attacking and cutting off his men in separate parties, as they had expected; so that this victory proved the greatest stroke to the Caledonians that they had hitherto received. This battle is supposed by some to have been fought in Strathern, half a mile south from the kirk of Comrie; but others imagine the place to have been near Fortingal-Camp, a place somewhat farther on the other side of the Tay.

8 Great victory gained by the Romans.

Great as this victory was, it seems not to have been pro-

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productive of any ſolid or laſting advantage to the Romans; ſince we find that Agricola, inſtead of putting an end to the war by the immediate conqueſt of all Caledonia, retreated into the country of the Foreſti, commonly ſuppoſed to be Forfarſhire, though others imagine it to have been the county of Fife. Here he received hoſtages from part of the Caledonians; and ordered part of his fleet to ſail round Britain, that they might diſcover whether it was an iſland or a continent. The Romans no ſooner had left that part of the country, than the Caledonians demoliſhed all the forts they had raiſed: and Agricola being ſoon after recalled by Domitian, the further progreſs of the Roman arms was ſtopped; Galgacus proving ſuperior to any of the ſucceſſors of that general.

From the time of Agricola to that of Adrian, we know little of the affairs of Scotland, excepting that during this interval the Scots muſt have entirely driven the Romans out of their country, and reconquered all that tract which lay between Agricola's chain of forts and Carliſle on the weſt, and Newcaſtle or Tinmouth-Bar on the eaſt; which Adrian, on viſiting Britain, thought proper to fix as the northern boundary of the Roman dominions. Here he built a wall of turf between the mouth of the Tine and the Solway frith, with a view to ſhut out the barbarians; which, however, did not anſwer the purpoſe, nor indeed could it be thought to do ſo, as it was only built of turf, and guarded by no more than 18,000 men, who could not be ſuppoſed a ſufficient force to defend ſuch an extent of fortification.

9 Wall built by Adrian.

On the departure of Adrian, he left Julius Severus as his lieutenant: but this man, though one of the greateſt commanders of his age, did not carry his arms to the northward of Adrian's wall; and this long interval of peace gave ſo much ſecurity to Mogold the Scottiſh monarch, that he degenerated into a tyrant, and was murdered by ſome of his noblemen. The only inſtance of his tyranny which is produced, however, is a law by which it was enacted, that the eſtates of ſuch as were condemned ſhould be forfeited to his exchequer, without any part thereof being allotted to their wives and children; an act which ſubſiſts almoſt in its full force to this day in Great Britain and the beſt regulated European governments.

In the reign of Antoninus Pius, the proprætor Lollius Urbius drove the Scots far to the northward, and repaired the chain of forts built by Agricola, which lay between the Carron on the frith of Forth and Dunglaſs on the Clyde. Theſe were joined together by turf walls, and formed a much better defence than the wall of Adrian. However, after the death of Antoninus, Commodus having recalled Calpurnius Agricola, an able commander, who kept the Scots in awe, a more dangerous war broke out than had ever been experienced by the Romans in that quarter. The Scots having paſſed the wall, put all the Romans they could meet with to the ſword: but they were ſoon repulſed by Ulpius Marcellus, a general of conſummate abilities, whom Commodus ſent into the iſland.—In a ſhort time the tyrant alſo recalled this able commander. After his departure, the Roman diſcipline in Britain ſuffered a total relaxation; the ſoldiery grew mutinous, and great diſorders enſued: but theſe were all happily removed by the arrival of Clodius Albinus, a perſon of great ſkill and experience in military affairs. His preſence for ſome time reſtrained the Scots within proper bounds: but a civil war breaking out between him and Severus, Albinus croſſed over to the continent with the greateſt part of the Roman forces in Britain; and meeting his antagoniſt at Lyons, a dreadful battle enſued, in which Albinus was utterly defeated, and his army cut in pieces. See ROME, n° 375.

The abſence of the Roman forces gave encouragement to the Scots to renew their depredations, which they did with ſuch ſucceſs, that the emperor became apprehenſive of loſing the whole iſland; on which he determined to go in perſon and quell theſe troubleſome enemies. The army he collected upon this occaſion was far more numerous than any the Romans had ever ſent into Britain; and being commanded by ſuch an able general as Severus, it may eaſily be ſuppoſed that the Scots muſt have been very hard preſſed. The particulars of this important expedition are very imperfectly related; however, we are aſſured that Severus loſt a vaſt number of men, it is ſaid not leſs than 50,000, in his march through Scotland. Notwithſtanding, he penetrated, it is ſaid, to the moſt northern extremity of the iſland, and obliged the enemy to yield up their arms. On his return, he built a much ſtronger fortification to ſecure the frontiers againſt the enemy than had ever been done before, and which in ſome places coincided with Adrian's wall, but extended farther at each end. But in the mean time, the Scots, provoked by the brutality of the emperor's ſon Caracalla, whom he had left regent in his abſence, again took arms: on which Severus himſelf took the field, with a deſign, as it would ſeem, to extirpate the whole nation; for he gave orders to his ſoldiers "not to ſpare even the child in the mother's belly." The event of his furious declaration is unknown: but in all probability the death of the emperor, which happened ſoon after, put a ſtop to the execution of this revenge; and it is certain that his ſon Caracalla, who ſucceeded Severus, ratified the peace with the Scots.

10 Wars of Severus with the Scots.

During all theſe important tranſactions, Scotland was governed by Donald I. who is ſaid to have been the firſt Chriſtian king of this country. From him to the time of Eugene I. no remarkable occurrence offers; but under the latter, the Roman and Pictiſh forces were united againſt the Scots. The Picts were commanded by their king, named *Harguſt*; and the Romans by Maximus, who murdered Valentinian III. and afterwards aſſumed the empire §. The allies defeated Eugene in the county of Galloway; but Maximus being obliged to return ſouthward on account of an inſurrection, the Picts were in their turn defeated by the Scots. Next year, however, Maximus marched againſt the Scots; who being now reduced to extremity, brought into the field not only all the men capable of bearing arms, but the women alſo. In this engagement the Picts would have been utterly defeated, had not they been ſupported by the Romans; but Eugene being killed, with the greateſt part of his nobility, the Scots were defeated; and ſo well did the conquerors improve their victory, that their antagoniſts were at laſt totally driven out of the country. Some of them took refuge in the Ebudæ iſlands, and ſome in Scandinavia and Ireland, from whence they made frequent deſcents upon Scotland. The Picts were at firſt mightily pleaſed with

11 Expedition of the Scots by Maximus.

§ See ROME, n° 530.

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with the victory they had gained over their antagonists: but being commanded to adopt the laws of the Romans, and to choose no king who was not sent them from Rome, they began to repent of their having contributed to the expulsion of the Scots; and in the year 421, when Autulphus king of the Goths sent over a body of exiled Scots to Britain, under Fergus, a descendant of the royal family of Scotland, the Picts immediately joined them against the common enemy. The consequence of this was, that the Britons were pushed to the last extremity; and the Romans being obliged, on account of the inundation of northern barbarians who poured in upon them, to recal their forces from Britain, the inhabitants were reduced to the most miserable situation that can be imagined. In the time of Fergus II. they were obliged to give up all the country which lies to the north of Adrian's wall; and in the reign of Grimus or Graham, the successor of Fergus, they were obliged to write that remarkable letter to Rome, intitled, "The groans of the Britons †." This, however, not being attended with success, the Britons were obliged to call in the Saxons to their assistance. By these new allies the Scots were defeated in a great battle, and their king (Eugene) drowned in the river Humber; which put a stop for some time to these incursions

12 They return under Fergus II.

† See England, n° 27.

Hitherto we have seen the Scots very formidable enemies to the southern Britons. But when the Saxons became the enemies of the Britons, the Scots joined in a strict alliance with the latter; and the famous king Arthur is said to have been assisted by the Scots in all his battles with the Saxons: neither does it appear that this league was ever dissolved again, though the united efforts of the Scots and Britons were not sufficient to preserve the independency of the latter.

13 War with the Picts.

The next remarkable event in the history of Scotland is the war with the Picts, which took place in the ninth century. The occasion of the quarrel was, that Dongal king of Scotland pretended a right to the Pictish throne; which, however, was rejected by the Picts: upon which both parties had recourse to arms; but when every thing was ready for the campaign, Dongal was drowned in crossing the river Spey.

At this time the dominions of the Scots comprehended the western islands, together with the counties of Argyle, Knapdale, Kyle, Kintyre, Lochaber, and a part of Breadalbane; while the Picts possessed all the rest of Scotland, and part of Northumberland; so that the Picts seem to have been by much the most powerful people of the two. However, the Scots appear to have been superior in military skill; for Alpin, the successor of Dongal, having engaged the Pictish army near Forfar, after an obstinate engagement defeated them, and killed their king, though not without the loss of a great number of his own men. The Picts chose Brudus, the son of their former king, to succeed him; but soon after deposed and put him to death, on account of his stupidity and indolence. His brother Kenneth shared the same fate on account of his cowardice; till at last another Brudus, a brave and spirited prince, ascended the throne. Having raised a powerful army, he began with offering terms of peace to the Scots; which, however, Alpin rejected, and insisted upon a total surrender of his crown. Brudus on this endeavoured to procure the assistance of Edwin king of Northumberland. Edwin accepted the money; but pretending to be engaged in other wars, he refused the assistance which he at first promised. Brudus, not dismayed by this disappointment, marched resolutely against his enemies; and the two armies came to an engagement near Dundee. The superior skill of the Scots in military affairs was about to have decided the victory in their favour, when Brudus bethought himself of the following stratagem to preserve his army from destruction. He caused all the attendants, and even the women who attended his army, to assemble and show themselves at a distance as a powerful reinforcement coming to the Picts. This struck the Scots with such a panic, that all the efforts of Alpin could not recover them; and they were accordingly defeated with great slaughter. Alpin himself was taken prisoner, and soon after beheaded by order of the conqueror. This execution happened at a place now called *Pit-alpy*, but in former times *Bas-alpin*, which in the Gaelic language signifies the *death of Alpin*. His head was afterwards stuck upon a pole, and exposed on a wall.

14 The Scots defeated, and their king killed

Alpin was succeeded by his son Kenneth II. who being a brave and enterprising prince, resolved to take a most severe revenge for his father's death. The Scots, however, were so dispirited by their late defeat, that they were exceedingly averse to any renewal of the war: while, on the other hand, the Picts were so much elated, that they made a law by which it became death for any man to propose peace with the Scots, whom they resolved to exterminate; and some of the nobility were expelled the council on account of their opposition to this law The consequence of this was, that civil dissensions took place among them, and a bloody battle was fought between the opposite parties, before the Scots had thought of making any farther resistance.

By these distractions Brudus, who had in vain endeavoured to appease them, was so much affected, that he died of grief; and was succeeded by his brother Drusken.—The new prince also failed in his endeavours to accommodate the civil differences; so that the Scots, by gaining so much respite, at last began to recover from their consternation; and some of them having ventured into the Pictish territories, carried off Alpin's head from the capital of their dominions, supposed to have been Abernethy. In the mean time, Kenneth found means to gain over the nobility to his side by the following stratagem; which, however ridiculous, is not incredible, if we consider the barbarism and superstition of that age. Having invited them to an entertainment, the king introduced into the hall where they slept a person clothed in a robe made of the skins of fishes, which made such a luminous appearance in the dark, that he was mistaken for an angel or some supernatural messenger. To add to the terror of those who saw him, he denounced, through a speaking trumpet, the most terrible judgments, if war was not immediately declared against the Picts, the murderers of the late king. In consequence of this celestial admonition, war was immediately renewed with great vigour. The Picts were not deficient in their preparations, and had now procured some assistance from England. The first battle was fought near Stirling; where the Picts, being deserted by their English auxiliaries, were utterly defeated. Drusken escaped by the swiftness

15 Stratagem of Kenneth to renew the war.

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ness of his horse, and a few days after made application to Kenneth for a cessation of hostilities; but as the Scottish monarch demanded a surrender of all the Pictish dominions, the treaty was instantly broken off. Kenneth pursued his good fortune, and conquered the counties of Merns, Angus, and Fife; but as he marched against Stirling, he received intelligence that these counties had again revolted, and cut off all the garrisons which he had left, and that Drusken was at the head of a considerable army in these parts. On this Kenneth hastened to oppose him, and a negociation again took place. The result was equally unfavourable with the rest. Kenneth insisted on an absolute surrender of the counties of Fife, Merns, and Angus; which being refused, both parties prepared for a decisive battle. The engagement was very bloody and desperate, the Picts fighting like men in despair. Drusken renewed the battle seven times; but at last was entirely defeated and killed, and the counties in dispute became the immediate property of the conqueror.

Kenneth did not fail to improve his victory, by reducing the rest of the Pictish territories; which he is said to have done with the greatest cruelty, and even to have totally exterminated the inhabitants. The capital, called *Camelon*, (supposed to have been Abernethy), held out four months; but was at last taken by surprise, and every living creature destroyed. This was followed by the reduction of the Maiden Castle, now that of Edinburgh; which was abandoned by the garrison, who fled to Northumberland.

After the reduction of these important places, the rest of the country made no great resistance, and Kenneth became master of all the kingdom of Scotland in the present extent of the word; so that he is justly to be esteemed the true founder of the Scottish monarchy. Besides this war with the Picts, Kenneth is said to have been successful against the Saxons, though of these wars we have very little account. Having reigned 16 years in peace after his subjugation of the Picts, and composed a code of laws for the good of his people, Kenneth died of a fistula, at Fort Teviot, near Duplin in Perthshire. Before his time the seat of the Scots government had been in Argyleshire; but he removed it to Scone, by transferring thither the famous black stone supposed to be the palladium of Scotland, and which was afterwards carried off by Edward I. of England, and lodged in Westminster abbey.

Kenneth was succeeded by his brother Donald, who is represented as a man of the worst character; so that the remaining Picts who had fled out of Scotland were encouraged to apply to the Saxons for assistance, promising to make Scotland tributary to the Saxon power after it should be conquered. This proposal was accepted; and the confederates invaded Scotland with a powerful army, and took the town of Berwick; however, they were soon after defeated by Donald, who took also their ships and provisions. This capture proved their ruin; for some of the ships being loaden with wine, the Scots indulged themselves so much with that liquor, that they became incapable of defending themselves; the consequence of this was, that the confederates rallying their troops, attacked them in that state of intoxication. The Scots were defeated with excessive slaughter. Twenty thousand of the common soldiers lay dead on the spot; the king and his principal nobility were taken prisoners; and all the country from the Tweed to the Forth became the property of the conquerors. Still, however, the confederates found themselves unable to pursue their victory farther; and a peace was concluded, on condition that the Saxons should become masters of all the conquered country. Thus the Forth and Clyde became the southern boundaries of the Scottish dominions. It was agreed that the Forth should from that time forward be called the *Scots Sea*; and it was made capital for any Scotsman to set his foot on English ground. They were to erect no forts near the English confines, to pay an annual tribute of a thousand pounds, and to give up 60 of the sons of their chief nobility as hostages. A mint was erected by the Saxon prince named *Osbreth*, at Stirling; and a cross raised on the bridge at that place, with the following inscription, implying that this place was the boundary between Scotland and England:

16 The Scots defeated by the Saxons.

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Anglos a Scotis separat crux ista remotis:
Arma hic stant Bruti, stant Scoti sub hac cruce tuti.

After the conclusion of this treaty, so humiliating to the Scots, the Picts, finding that their interest had been entirely neglected, fled to Norway, while those who remained in England were massacred. Donald shared the common fate of unfortunate princes, being dethroned and shut up in prison, where he at last put an end to his own life in the year 858.—In justice to this unhappy monarch, however, it must be observed, that the character of Donald, and indeed the whole account of these transactions, rests on the credit of a single author, namely Boece; and that other writers represent Donald as a hero, and successful in his wars: but the obscurity in which the whole of this period of Scottish history is involved, renders it impossible to determine any thing satisfactory concerning these matters.

Donald was succeeded by his nephew Constantine, the son of Kenneth Mac Alpin, in whose reign Scotland was first invaded by the Danes, who proved such formidable enemies to the English. This invasion is said to have been occasioned by some exiled Picts who fled to Denmark, where they prevailed upon the king of that country to send his two brothers, Hungar and Hubba, to recover the Pictish dominions from Constantine. These princes landed on the coast of Fife, where they committed the most horrid barbarities, not sparing even the ecclesiastics who had taken refuge in the island of May at the mouth of the Forth. Constantine defeated one of the Danish armies commanded by Hubba, near the water of Leven; but was himself defeated and taken prisoner by Hungar, who caused him to be beheaded at a place since called the *Devil's Cave*, in the year 874.

17 And by the Danes.

This unfortunate action cost the Scots 10,000 men: but the Danes seem not to have purchased their victory very easily, as they were obliged immediately afterwards to abandon their conquests, and retire to their own country. However, the many Danish monuments that are still to be seen in Fife, leave no room to doubt that many bloody scenes have been acted here between the Scots and Danes besides that above-mentioned.

Constantine was succeeded by his brother Eth, surnamed the *Swift foot*, from his activity. Concerning him we find nothing memorable; indeed the accounts are so confused and contradictory, that it is impossible

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to form any decisive opinion concerning the transactions of this reign. All agree, however, that it was but short; and that he was succeeded by Gregory the son of Dongal, contemporary with Alfred of England, and that both princes deservedly acquired the name of *Great*.

18 Exploits of Gregory the Great.

The Danes at their departure had left the Picts in possession of Fife. Against them Gregory immediately marched, and quickly drove them into the north of England, where their confederates were already masters of Northumberland and York. In their way thither they threw a garrison into the town of Berwick; but this was presently reduced by Gregory, who put to the sword all the Danes, but spared the lives of the Picts. From Berwick, Gregory pursued the Danes into Northumberland, where he defeated them; and passed the winter in Berwick. He then marched against the Cumbrians, who being mostly Picts were in alliance with the Danes. Them he easily overcame, and obliged to yield up all the lands they had formerly possessed belonging to the Scots, at the same time that he agreed to protect them from the power of the Danes. In a short time, however, Constantine the king of the Cumbrians violated the convention he had made, and invaded Annandale; but was defeated and killed by Gregory near Lochmaben. After this victory Gregory entirely reduced the counties of Cumberland and Westmoreland, which, it is said, were ceded to him by Alfred the Great; and indeed the situation of Alfred's affairs at this time renders such a cession by no means improbable.

We next find Gregory engaged in a war with the Irish, to support Donach, an Irish prince, against two rebellious noblemen. The Irish were the first aggressors, and invaded Galloway; but being repulsed with great loss, Gregory went over to Ireland in person, where the two chieftains, who had been enemies to each other before, now joined their forces in order to oppose the common enemy. The first engagement proved fatal to one of their chiefs named *Brian*, who was killed with a great number of his followers. After this victory Gregory reduced Dundalk and Drogheda. On his way to Dublin he was opposed by a chieftain named *Cornell*, who shared the fate of his confederate, being also killed, and his army entirely defeated. Gregory then became guardian to the young prince whom he came to assist, appointed a regency, and obliged them to swear that they would never admit into the country either a Dane or an Englishman without his consent. Having then placed garrisons in the strongest fortresses, he returned to Scotland, where he built the city of Aberdeen; and died in the year 892, at his castle of Dundore in the Garioch.

19 Donald III.

Gregory was succeeded by Donald III. the son of Constantine, who imitated the virtues of his predecessor. The Scots historians unanimously agree that Northumberland was at that time in the hands of their countrymen; while the English as unanimously affirm that it was subject to the Danes, who paid homage to Alfred. Be this as it will, however, Donald continued to live on good terms with the English monarch, and sent him a body of forces, who proved of considerable advantage to him in his wars with the Danes. The reign of Donald was but short; for having marched against some robbers (probably no other than the Danes) who had invaded and ravaged the counties of Murray and Ross, he died at Forres soon after, having defeated and subdued them in the year 903. He was succeeded by Constantine III. the son of Eth the Swift-footed, concerning whom the most remarkable particular we find related is his entering into an alliance with the Danes against the English. The occasion of this confederacy is said to have been, that the English monarch, Edward the Elder, finding the Scots in possession of the northern counties of England, made such extravagant demands upon Constantine as obliged him to ally with the Danes in order to preserve his dominions in security. However, the league subsisted only for two years, after which the Danes found it more for their advantage to resume their ancient friendship with the English.

20 Constantine III enters into an alliance with the Danes against England.

As soon as Constantine had concluded the treaty with the Danes, he appointed the presumptive heir to the Scottish crown, Malcolm, or, according to some, Eugene the son of the late king Donald, prince of the southern counties, on condition of his defending them against the attacks of the English. The young prince had soon an opportunity of exerting his valour; but not behaving with the requisite caution, he had the misfortune to be defeated, with the loss of almost all his army, he himself being carried wounded out of the field; and in consequence of this disaster, Constantine was obliged to do homage to Edward for the possessions he had to the southward of the Scots boundary.

In the beginning of the reign of Athelstan the son of Edward the Elder, the northern Danes were encouraged by some conspiracies formed against that monarch to throw off the yoke; and their success was such, that Athelstan thought proper to enter into a treaty with Sithric the Danish chief, and to give him his daughter in marriage. Sithric, however, did not long survive his nuptials; and his son Guthred, endeavouring to throw off the English yoke, was defeated, and obliged to fly into Scotland. This brought on a series of hostilities between the Scots and English, which in the year 938 issued in a general engagement. At this time the Scots, Irish, Cumbrians, and Danes, were confederated against the English. The Scots were commanded by their king Constantine, the Irish by Anlaf the brother of Guthred the Danish prince, the Cumbrians by their own sovereign, and the Danes by Froda. The generals of Athelstan were Edmund his brother, and Turketil his favourite. The English attacked the entrenchments of the confederates, where the chief resistance they met with was from the Scots. Constantine was in the utmost danger of being killed or taken prisoner, but was rescued by the bravery of his soldiers: however, after a most obstinate engagement, the confederates were defeated with such slaughter, that the slain are said to have been *innumerable*. The consequence of this victory was, that the Scots were deprived of all their possessions to the southward of the Forth; and Constantine, quite dispirited with his misfortune, resigned the crown to Malcolm, and retired to the monastery of the Culdees at St Andrew's, where he died five years after, in 943.

21 Is utterly defeated by the English.

The distresses which the English sustained in their subsequent wars with the Danes gave the Scots an opportunity of retrieving their affairs; and in the year 944, we find Malcolm, the successor of Constantine, invested with the sovereignty of Northumberland, on condition

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dition of his holding it as fief of the crown of England, and assisting in defence of the northern border. Soon after the conclusion of this treaty Malcolm died, and was succeeded by his son Indulfus. In his reign the Danes became extremely formidable by their invasions, which they now renewed with greater fury than ever, being exasperated by the friendship subsisting between the Scots and English monarchs. Their first descent was upon East Lothian, where they were soon expelled, but crossed over to Fife. Here they were a second time defeated, and driven out; and so well had Indulfus taken care to guard the coasts, that they could not find an opportunity of landing; till having seemed to steer towards their own country, the Scots were thrown off their guard, and the Danes on a sudden made good their landing at Cullen, in Banffshire. Here Indulfus soon came up with them, attacked their camp, and drove them towards their ships, but was killed in an ambuscade, into which he fell during the pursuit. He was succeeded by Duffus, to whom historians give an excellent character; but, after a reign of five years, he was murdered, in the year 965. He was succeeded by Culen the son of Indulfus, who had been nominated prince of Cumberland in his father's lifetime, as heir-apparent to the throne. He is represented as a very degenerate prince; and is said to have given himself up to sensuality in a manner almost incredible, being guilty of incontinence not only with women of all ranks, but even with his own sisters and daughters. The people in the mean time were fleeced, in order to support the extravagance and luxury of their prince. In consequence of this, an assembly of the states was convened at Scone for the resettling of the government; but on his way thither Culen was assassinated, near the village of Methven, by Rohard, thane or sheriff of Fife, whose daughter the king had debauched.

22 New invasions of the Danes.

23 Kenneth II. a wise and valiant prince.

The provocations which Culen had given to his nobility seem to have rendered them totally untractable and licentious; which gave an occasion to a remarkable revolution in the reign of Kenneth III. who succeeded Culen. This prince, being a man of great resolution, began with relieving the common people from the oppressions of the nobility, which were now intolerable; and this plan he pursued with so much success, that, having nothing to fear from the great barons, he ordered them to appear before him at Lanerk; but the greatest part, conscious of their demerits, did not attend. The king so well dissembled his displeasure, that those who came were quite charmed with his affability, and the noble entertainment he gave them; in consequence of which, when an assembly was called next year, the guilty were encouraged to appear as well as the innocent. No sooner had this assembly met, however, than the place of meeting was beset with armed men. The king then informed them that none had any thing to apprehend excepting such as had been notorious offenders; and these he ordered to be immediately taken into custody, telling them, that their submitting to public justice must be the price of their liberty. They were obliged to accept the king's offer, and the criminals were accordingly punished according to their deserts.

About this time Edgar, king of England, finding himself hard pressed by the Danes, found means to unite the king of Scotland and the prince of Cumberland along with himself in a treaty against the Danes; which gave occasion to a report that Kenneth had become tributary to the king of England. This, however, is utterly denied by all the Scots historians; who affirm that Kenneth cultivated a good correspondence with Edgar, as well because he expected assistance in defending his coasts, as because he intended entirely to alter the mode of succession to the throne. About this time the Danes made a dreadful invasion. Their original intention seems to have been to land on some part of the English coasts; but finding them probably too well guarded, they landed at Montrose in Scotland, committing every where the most dreadful ravages. Kenneth at that time was at Stirling, and quite unprepared; however, having collected an handful of troops, he cut off many of the enemy as they were straggling up and down, but could not prevent them from besieging Perth. Nevertheless, as the king's army constantly increased, he resolved to give the enemy battle. The scene of this action was at Loncarty, near Perth. The king is said to have offered ten pounds in silver, or the value of it in land, for the head of every Dane which should be brought him; and an immunity from all taxes to the soldiers who served in his army, provided they should be victorious: but, notwithstanding the utmost efforts of the Scots, their enemies fought so desperately, that Kenneth's army must have been totally defeated, had not the fugitives been stopped by a yeoman and his two sons of the name of *Hay*, who were coming up to the battle, armed with such rustic weapons as their condition in life afforded. Buchanan and Boece inform us, that these countrymen were ploughing in a field hard by the scene of action, and perceiving that their countrymen fled, they loosed their oxen, and made use of the yokes as weapons, with which they first obliged their countrymen to stand, and then annoyed their enemies. The fight was now renewed with such fury on the part of the Scots, that the Danes were utterly defeated; and, after the battle, the king rewarded Hay with the barony of Errol in the Carse of Gowrie, ennobled his family, and gave them an armorial bearing alluding to the rustic weapons with which they had atchieved this glorious exploit.

24 Defeats the Danes.

25 Rise of the family of Errol.

In the year 994, Kenneth was murdered at the instigation of a lady named *Fenella*, whose son he had caused to be put to death. The murder was perpetrated in Fenella's castle, where she had persuaded the king to pay her a visit. His attendants waited long near the place; but being at length tired out, they broke open the doors, and found their king murdered: upon which they laid the castle in ashes; but Fenella escaped by a postern. The throne was then seized by an usurper named *Constantine*; who, being killed in battle after a reign of a year and an half, was succeeded by Grime, the grandson of king Duffus; and he again was defeated and killed by Malcolm the son of Kenneth, the lawful heir of the Scottish throne. After this victory, however, Malcolm did not immediately assume the sovereignty; but asked the crown from the nobles, in consequence of a law passed in the reign of Kenneth, by which the succession to the throne of Scotland became hereditary. This they immediately granted, and Malcolm was accordingly crowned king. He joined himself in strict alliance with the king of England; and proved so successful against the Danes in England, that

26 Kenneth murdered.

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Sweyn their king resolved to direct his whole force against him by an invasion of Scotland. His first attempt, however, proved very unsuccessful; all his soldiers being cut in pieces, except some few who escaped to their ships, while the loss of the Scots amounted to no more than 30 men. But in the mean time, Duncan, prince of Cumberland, having neglected to pay his homage to the king of England, the latter invaded that country in conjunction with the Danes. Malcolm took the field against them, and defeated both; but while he was thus employed in the south, a new army of Danes landed in the north at the mouth of the river Spey. Malcolm advanced against them with an army much inferior in number; and his men, neglecting every thing but the blind impulses of fury, were almost all cut to pieces; Malcolm himself being desperately wounded.

27 The Scots defeated by the Danes.

By this victory the Danes were so much elated, that they sent for their wives and children, intending to settle in this country. The castle of Nairn, at that time thought almost impregnable, fell into their hands; and the towns of Elgin and Forres were abandoned both by their garrisons and inhabitants. The Scots were everywhere treated as a conquered people, and employed in the most servile offices by the haughty conquerors; who, to render the castle of Nairn, as they thought, absolutely impregnable, cut through the small isthmus which joined it to the land. All this time, however, Malcolm was raising forces in the southern counties; and having at last got an army together, he came up with the Danes at Murtloch, near Balveny, which appears at this day to have been a strong Danish fortification. Here he attacked the enemy; but having the misfortune to lose three of his general officers, he was again obliged to retreat. However, the Danish general happening to be killed in the pursuit, the Scots were encouraged to renew the fight with such vigour, that they obtained at last a complete victory; but suffered so much, that they were unable to derive from it all the advantages which might otherwise have accrued.

28 But defeat them in a second battle.

On the news of this ill success, Sweyn ordered two fleets, one from England and another from Norway, to make a descent upon Scotland, under the command of Camus, one of his most renowned generals. The Danes attempted to land at the mouth of the Forth; but finding every place there well fortified, they were obliged to move farther northward, and effected their purpose at Redhead in the county of Angus. The castle of Brechin was first besieged; but meeting with a stout resistance there, they laid the town and church in ashes. From thence they advanced to the village of Panbride, and encamped at a place called *Karboddo*. Malcolm in the mean time was at hand with his army, and encamped at a place called *Barr*, in the neighbourhood of which both parties prepared to decide the fate of Scotland; for as Moray and the northern provinces were already in the possession of the Danes, it was evident that a victory at this time must put them in possession of the whole. The engagement was desperate, and so bloody, that the rivulet which proceeds from Loch Tay is said to have had its water dyed with the blood of the slain; but at last the Danes gave way and fled. There was at that time in the army of Malcolm, a young prince of the name of *Keith* (A). He pursued Camus; and having overtaken him, engaged and killed him; but another Scots officer coming up at the same time, disputed with Keith the glory of the action. While the dispute lasted, Malcolm came up; who suffered them to decide it by single combat. In this second combat Keith proved also victorious, and killed his antagonist. The dying person confessed the justice of Keith's claim; and Malcolm dipping his finger in his blood marked the shield of Keith with three strokes, pronouncing the words *Veritas vincit*, "Truth overcomes," which has ever since been the armorial bearing and motto of the family of Keith (B).

29 The Danes again defeated.

30 Rise of the family of Keith.

The shattered remains of the Danish forces reached their ships; but being driven back by contrary winds, and provisions becoming scarce, they put ashore 500 men on the coast of Buchan, to procure them some food: but their communication with the ships being soon cut off, they fortified themselves as well as they could, and made a desperate resistance; but at last were all put to the sword. The place where this massacre happened is still called *Crudane*; being probably an abbreviation of *Cruor Danorum*, the blood of the Danes, a name imposed on it by the ecclesiastics of those days.

Sweyn, not yet discouraged, sent his son Canute, afterwards king of England, and one of the greatest warriors of that age, into Scotland, with an army more powerful than any that had yet appeared. Canute landed in Buchan; and, as the Scots were much weakened by such a long continued war, Malcolm thought proper to act on the defensive. But the Scots, who now thought themselves invincible, demanded to be led on to a general engagement. Malcolm complied with their desire, and a battle ensued; in which though neither party had much reason to boast of victory, the Danes were so much reduced, that they willingly concluded a peace on the following terms, viz. That the Danes should immediately depart Scotland; that as long as Malcolm and Sweyn lived, neither of them should wage war with the other, or help each other's enemies; and

31 Another invasion.

32 Peace concluded.

(A) This prince is said to have commanded a colony of the Catti, a German nation who settled in the northmost part of Scotland, and from whom the county of Caithness takes its name.

(B) Mr Gordon, in his *Itinerarium Septentrionale*, observes, that in all probability the Scots gained two victories over the Danes on the present occasion; one near the place called *Karboddo*, already mentioned; and the other at Aberlemno, four miles from Brechin. At both places there are monuments with rude sculptures, erected most probably in memory of a victory. That at Karboddo is called *Camus's cross*; near which, somewhat more than a century ago, a large sepulchre, supposed to be that of Camus, was discovered. It consisted of four great stones; and had in it a huge skeleton, supposed to be that of the Danish prince. The fatal stroke seemed to have been given him on the back part of the head; a considerable portion of the skull being cut away, probably by the stroke of the sword.

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and that the field in which the battle was fought should be set apart and consecrated for the burial of the dead. These stipulations were punctually fulfilled by Malcolm, who built in the neighbourhood a chapel dedicated to Olaus, the tutelar saint of these northern nations.

After all these glorious exploits, and becoming the second legislator in the Scottish nation, Malcolm is said to have stained the latter part of his reign with avarice and oppression; in consequence of which he was murdered at the age of 80 years, after he had reigned above 40. This assassination was perpetrated when he was on his way to Glamis. His own domestics are said to have been privy to the murder, and to have fled along with the conspirators; but in passing the lake of Forfar on the ice, it gave way with them, and they were all drowned, their bodies being discovered some days after. The latter part of this account is confirmed by the sculptures upon some stones erected near the spot; one of which is still called *Malcolm's grave-stone*; and all of them exhibit some rude representations of the murder and the fate of the assassins.

33 Malcolm assassinated.

34 Duncan I.

Malcolm was succeeded, in the year 1034, by his grandson Duncan I. but he is said to have had another grandson, the famous Macbeth; though some are of opinion that Macbeth was not the grandson of Malcolm, but of Fenella who murdered Kenneth III. The first years of Duncan's reign were passed in tranquillity, but domestic broils soon took place on the following occasion. Banquo, thane of Lochaber, and ancestor to the royal family of Stuart, acted then in the capacity of steward to Duncan, by collecting his rents; but being very rigid in the execution of his office, he was way-laid, robbed, and almost murdered. Of this outrage Banquo complained as soon as he recovered of his wounds and could appear at court. The robbers were summoned to surrender themselves to justice; but instead of obeying, they killed the messenger. Macbeth represented this in such strong terms, that he was sent with an army to reduce the insurgents, who had already destroyed many of the king's friends. This commission he performed with such success, that the rebel chief put an end to his own life: after which Macbeth sent his head to the king, and then proceeded with the utmost severity against the insurgents, who were composed of Irishmen, Islanders, and Highlanders.

35 A new invasion by the Danes.

This insurrection was scarcely quelled, when the Danes landed again in Fife: and Duncan put himself at the head of an army, having the thanes Macbeth and Banquo serving under him. The Danes were commanded by Sweyn king of Norway, and eldest son of Canute. He proceeded with all the barbarity natural to his nation, putting to death men, women, and children who fell in his way. A battle was fought between the two nations near Culross, in which the Scots were defeated: but the Danes purchased their victory so dearly, that they could not improve it: and Duncan retreated to Perth, while Macbeth was sent to raise more forces. In the mean time Sweyn laid siege to Perth, which was defended by Duncan and Banquo. The Danes were so much distressed for want of provisions, that they at last consented to treat of a peace, provided the pressing necessities of the army were relieved. The Scots historians inform us, that this treaty was set on foot in order to amuse Sweyn, and gain time for the stratagem which Duncan was preparing. This was no other than a barbarous contrivance of infusing intoxicating herbs into the liquors that were sent along with the other provisions to the Danish camp. These soporifics had their intended effect; and while the Danes were under their influence, Macbeth and Banquo broke into their camp, where they put all to the sword, and it was with difficulty that some of Sweyn's attendants carried him on board; and we are told that his was the only ship of all the fleet that returned to Norway. It was not long, however, before a fresh body of Danes landed at Kinghorn in the county of Fife: but they were entirely defeated by Macbeth and Banquo. Such of the Danes as escaped fled to their ships; but before they departed they obtained leave to bury their dead in Inchcolm, a small island lying in the Forth, where one of their monuments is still to be seen.

36 Who are defeated.

Thus ended the formidable invasions of the Danes; after which Duncan applied himself to the administration of justice, and the reformation of the manners of his subjects. Macbeth, however, who had obtained great reputation by his success against the Danes, began to form ambitious designs, and to aspire to the crown itself. The fables relating to his usurpation are so well known from the tragedy composed by Shakespeare which bears the name of *Macbeth*, that we shall not take notice of them here; but only observe, that at last Duncan, not knowing he had so dangerous an enemy near his person, whose schemes required to be watched, was murdered at Inverness by Macbeth, who succeeded him in the throne.

37 Duncan murdered by Macbeth, who assumes the throne.

During the greatest part of the reign of the usurper, Malcolm, the true heir to the crown of Scotland, kept close in his principality of Cumberland, without any thoughts of ascending his father's throne. Macbeth for some time governed with moderation, but at last became a tyrant. Becoming jealous of Banquo, the most powerful subject in his dominions, he invited him to an entertainment, and caused him to be treacherously murdered. His son Fleance was destined to the same fate, but escaped to Wales. After him Macduff, the thane of Fife, was the most powerful person in Scotland; for which reason, Macbeth determined to destroy him. On this Macduff fled to France; and Macbeth cruelly put to death his wife, and children who were yet infants, and sequestered his estate. Macduff vowed revenge, and encouraged Malcolm to attempt to dethrone the tyrant. Macbeth opposed them with his whole force; but being defeated in a pitched battle, he took refuge in the most inaccessible places of the Highlands, where he defended himself for two years; but in the mean time Malcolm was acknowledged king of Scotland, and crowned at Scone.

38 Macbeth driven out.

39 And killed.

The war between Macbeth and the new king continued for two years after the coronation of the latter; but at last he was killed in a rally by Macduff. However the public tranquillity did not end with his life. His followers elected one of his kinsmen named *Lennox*, surnamed the *Idiot*, to succeed him: but he not being able to withstand Malcolm, withdrew to the north, where being pursued, he was killed at Essey in Strathbogie, after a reign of four months.

40 Malcolm III. rewarded Macduff with many

Malcolm being now established on the throne, began with rewarding Macduff for his great services; and conferred upon his family four extraordinary privileges,

Scotland.

1. That they ſhould place the king in his chair of ſtate at the coronation. 2. That they ſhould lead the van of all the royal armies. 3. That they ſhould have a regality within themſelves: and, 4. That if any of Macduff's family ſhould happen to kill a nobleman unpremeditately, he ſhould pay 24 marks of ſilver, and, if a plebeian, 12. The king's next care was to reinſtate in their fathers poſſeſſions all the children who had been diſinherited by the late tyrant; which he did in a convention of his nobles held at Forfar. In the time of William the conqueror, we find Malcolm engaged in a dangerous war with England, the occaſion of which was as follows. On the death of Edward the Confeſſor, Harold ſeized the throne of England, to the prejudice of Edgar Atheling the true heir to the crown. However, he created him earl of Oxford, and treated him with great reſpect; but on the defeat and death of Harold, William diſcovered ſome jealouſy of Edgar. Soon after, William having occaſion to pay a viſit to his dominions in Normandy, he appointed Edgar to attend him, along with ſome other noblemen whom he ſuſpected to be in his intereſt; but on his return to England, he found the people ſo much diſaffected to his government, that he proceeded with great ſeverity, which obliged great numbers of his ſubjects to take refuge in Cumberland and the ſouthern parts of Malcolm's dominions. Edgar had two ſiſters, Margaret and Chriſtina: theſe, with his two chief friends, Goſpatric and Marteſwin, ſoon made him ſenſible how precarious his life was under ſuch a jealous tyrant, and perſuaded him to make preparations for flying into Hungary or ſome foreign country. Edgar accordingly ſet ſail with his mother Agatha, his two ſiſters, and a great train of Anglo-Saxon noblemen; but by ſtreſs of weather was forced into the frith of Forth, where the illuſtrious exiles landed at the place ſince that time called the *Queen's Ferry*. Malcolm no ſooner heard of their landing than he paid them a viſit in perſon; and at this viſit he fell in love with the princeſs Margaret. In conſequence of this, the chief of Edgar's party repaired to the court of Scotland. William ſoon made a formal demand of Edgar; and on Malcolm's refuſal, declared war againſt him.

41 Entertains Edgar an Engliſh prince.

42 War between Scotland and England.

William was the moſt formidable enemy the Scots had ever encountered, as having not only the whole force of England, but of Normandy, at his command. However, as he had tyrannized moſt unmercifully over his Engliſh ſubjects, they were much more inclined to aſſiſt his enemies than their own prince; and he even found himſelf obliged to give up the county of Northumberland to Goſpatric, who had followed Edgar, upon condition of his making war on the Scots. This nobleman accordingly invaded Cumberland; in return for which Malcolm ravaged Northumberland in a dreadful manner, carrying off an immenſe booty, and inviting at the ſame time the Iriſh and Danes to join him.

Even at this time the Danes kept up their claims upon the crown of England, ſo that they could not be ſuppoſed very zealous for the intereſt of Edgar. The Iriſh were alſo intereſted in advancing the cauſe of Harold's three ſons, who had put themſelves under their protection; and beſides, their chief view ſeems to have been to obtain plunder at the expence of any party. However, as all theſe views tended to the pulling down of William's power, an union was formed againſt him; but when they came to particular ſtipulations, the parties immediately diſagreed. The three ſons of Harold, with a body of Iriſh, made a deſcent upon Somerſetſhire, and defeated a body of Engliſh; but the Iriſh having thus obtained an opportunity of acquiring ſome booty, immediately retired with it, after having ravaged the country. The Danes landed at the mouth of the Humber from 40 ſmall ſhips, where they were joined by Edgar and his party; and had the allies been unanimous, it is probable that William's government would have been overthrown.

43 England invaded.

By this time William had taken from Goſpatric the earldom of Northumberland, and given it to Robert Cummin one of his Norman barons; but the Northumbrians having joined Goſpatric, and received the Danes as their countrymen, murdered Cummin and all his followers at Durham, where they had been guilty of great cruelties. After this they laid ſiege to the forts built by William in Yorkſhire; but not being able to reduce them, the Engliſh, Scots, and Danes, united their forces, took the city of York itſelf, and put to the ſword three thouſand Normans who were there in garriſon; and this ſucceſs was followed by many incurſions and ravages, in which the Danes and Northumbrians acquired great booty. It ſoon appeared, however, that theſe allies had the intereſt of Edgar no more at heart than the Iriſh; and that all the dependence of this forlorn prince was upon Malcolm, and the few Engliſhmen who had followed his fortune: for the booty was no ſooner obtained, than the Danes retired to their ſhips, and the Northumbrians to their habitations, as though they had been in perfect ſafety. But in the mean time William, having raiſed a conſiderable army, advanced northwards. He firſt took a ſevere revenge upon the Northumbrians; then he reduced the city of York, and put to death all the inhabitants; and perceiving that danger was ſtill threatened by the Danes, he bribed them with a ſum of money to depart to their own country.

Malcolm was now left alone to encounter this formidable adverſary; who, finding himſelf unable to oppoſe ſo great a force, withdrew to his own dominions, where he remained for ſome time upon the defenſive, but not without making great preparations for invading England once more. His ſecond invaſion took place in the year 1071, while William was employed in quelling an inſurrection in Wales. He is ſaid at this time to have behaved with the greateſt cruelty. He invaded England by Cumberland; ravaged Teſdale; and at a place called *Hundreds-keld*, he maſſacred ſome Engliſh noblemen, with all their followers. From thence he marched to Cleveland in the north-riding of Yorkſhire; which he alſo ravaged with the utmoſt cruelty, ſending back the booty with part of his army to Scotland: after which, he pillaged the biſhopric of Durham, where he is ſaid not to have ſpared the moſt ſacred edifices, but to have burnt them to the ground. In the mean time Goſpatric, to whom William had had again ceded Northumberland, attempted to make diverſion in his favour, by invading Cumberland: but being utterly defeated by Malcolm, he was obliged to ſhut himſelf up in Bamborough caſtle; while Malcolm returned in triumph with his army to Scotland, where he married the princeſs Margaret.

44 A ſecond invaſion.

The next year William, having greatly augmented his

otland. 45 illiam Conror invades Scotland.

his army, invaded Scotland in his turn. The particulars of the war are unknown; but it certainly ended much to the disadvantage of the Scots, as Malcolm agreed to pay him homage. The English historians contend that this homage was for the whole of his dominions; but the Scots with more show of reason affirm, that it was only for those he possessed in England. On the conclusion of the peace, a cross was erected at Stanmore in Richmondshire, with the arms of both kings, to serve as a boundary between the possessions of William and the feudal dominions of Malcolm. Part of this monument, called *Re-cross*, or rather *Roy-cross*, or *The cross of the kings*, was entire in the days of Camden.

46 formation set on it by the ng and een of otland.

This peace between Malcolm Canmore and William produced the greatest alteration in the manners of the Scots. What contributed chiefly to this was the excellent disposition of queen Margaret; who was, for that age, a pattern of piety and politeness: and next to this was the number of foreigners who had settled in Scotland; among whom were some Frenchmen, who laid the foundation of that friendship with the Scots which lasted for ages. Malcolm himself, also, though by his ravages in England he seems naturally to have been a barbarian, was far from being averse to a reformation, and even set the example himself. During her husband's absence in England queen Margaret had chosen for her confessor one Turgot, whom she also made her assistant in her intended reformation. She began with new-modelling her own court; into which she introduced the offices, furniture, and manner of living, common among the more polite nations of Europe. She dismissed from her service all those who were noted for immorality and impiety: and charged Turgot, on pain of her displeasure, to give his real sentiments on the state of the kingdom, after the best inquiry he could make. By him she was informed, that faction reigned among the nobles, rapine among the commons, and incontinence among all degrees of men. Above all, he complained that the kingdom was destitute of a learned clergy, capable of reforming the people by their example and doctrine. All this the queen represented to her husband, and prevailed upon him to set about the work of reformation immediately; in which, however, he met with considerable opposition. The Scots, accustomed to oppress their inferiors, thought all restrictions of their power were as many steps towards their slavery. The introduction of foreign offices and titles confirmed them in this opinion; and such a dangerous insurrection happened in Moray and some of the northern counties, that Malcolm was obliged to march against the rebels in person. He found them, indeed, very formidable; but they were so much intimidated by his resolution, that they intreated the clergy who were among them to intercede with the king in their favour. Malcolm received their submission, but refused to grant an unconditional pardon. He gave all the common people indeed leave to return to their habitations, but obliged the better sort to surrender themselves to his pleasure. Many of the most guilty were put to death, or condemned to perpetual imprisonment; while others had their estates confiscated. This severity checked the rebellious spirit of the Scots, upon which Malcolm returned to his plans of reformation. Still, however, he found himself opposed even in those abuses, which were most obvious and glaring. He durst not entirely abolish that infamous practice of the landlord claiming the first night with his tenant's bride; though, by the queen's influence, the privilege was changed into the payment of a piece of money by the bridegroom, and was afterwards known by the name of *mercheta mulierum*, or "the woman's merk." In those days the Scots were without the practice of saying grace after meals, till it was introduced by Margaret, who gave a glass of wine, or other liquor, to those who remained at the royal table and heard the thanksgiving; which expedient gave rise to the term of the *grace-drink*. Besides this, the terms of the duration of Lent and Easter were fixed; the king and queen bestowed large alms on the poor, and the latter washed the feet of six of their number; many churches, monasteries, &c. were erected, and the clerical revenues augmented. However, notwithstanding these reformations, some historians have complained, that, along with the manners of the English and French, their luxuries were also introduced. Till this reign the Scots had been remarkable for their sobriety and the simplicity of their fare; which was now converted into excess and riot, and sometimes ended fatally by quarrels and bloodshed. We are told, at the same time, that even in those days, the nobility eat only two meals a-day, and were served with no more than two dishes at each meal; but that their deviation from their ancient temperance occasioned a diminution of the strength and size of the people.

47 England again invaded.

In the year 1077, Malcolm again invaded England; but upon what provocation, or with what success, is not well known. But in 1088, after the death of the Conqueror, he again espoused the cause of Edgar Atheling, who had been reduced to implore his assistance a second time, when William Rufus ascended the throne of England. At the time of Edgar's arrival, Malcolm was at the head of a brave and well-disciplined army, with which he penetrated a great way into the country of the enemy; and, as it is said, returned to Scotland with an immense booty. Some historians tell us, that in this expedition Malcolm met with a defeat, which obliged him to return; and indeed this is not a little countenanced by others, who say, not indeed that he was defeated, but that it was *the will of God* he should proceed no farther. But, be this as it will, William resolved to revenge the injury, and prepared great armaments both by sea and land for the invasion of Scotland. His success, however, was not answerable to the greatness of his preparations. His fleet was dashed to pieces by storms, and almost all on board of it perished. Malcolm had also laid waste the country through which his antagonist was to pass, in such an effectual manner, that William lost a great part of his troops by fatigue and famine; and, when he arrived in Scotland, found himself in a situation very little able to resist Malcolm, who was advancing against him with a powerful army. In this distress, Rufus had recourse to Robert de Mowbray earl of Northumberland, who dissuaded him from venturing a battle, but advised him by all means to open a negociation by means of Edgar and the other English noblemen who resided with Malcolm. Edgar undertook the negociation, on condition of his being restored to his estates in England; but met with more difficulty than he imagined. Malcolm had never yet recognized the right of William Rufus to the throne

48 The English army in great danger.

Scotland.

of England, and therefore refused to treat with him as a sovereign prince; but offered to enter into a negociation with his brother Robert, surnamed *Curt-hose*, from the shortness of his legs. The two princes accordingly met; and Malcolm, having shown Robert the disposition of his army, offered to cut off his brother William, and to pay to him the homage he had been accustomed to pay to the Conqueror for his English dominions. But Robert generously answered, that he had resigned to Rufus his right of primogeniture in England; and that he had even become one of William's subjects, thereby accepting of an English estate.

49 Peace concluded.

An interview with William then followed; in which it was agreed that the king of England should restore to Malcolm all his southern possessions, for which he should pay the same homage he had been accustomed to do to the Conqueror; that he should restore to Malcolm 12 disputed manors, and give him likewise 12 merks of gold yearly, besides restoring Edgar to all his English estates.

This treaty was concluded in Lothian, according to the English historians; but at Leeds in Yorkshire, according to the Scots. However, the English monarch looked upon the terms to be so very dishonourable, that he resolved not to fulfil them. Soon after his departure Edgar and Robert began to press him to fulfil his engagements; but receiving only evasive answers, they passed over into Normandy. After their departure, William applied himself to the fortification of his northern boundaries, especially Carlisle, which had been destroyed by the Danes 200 years before.—As this place lay within the feodal dominions of Malcolm, he complained of William's proceeding, as a breach of the late treaty; and soon after repaired to the English court at Gloucester, that he might have a personal interview with the king of England, and obtain redress.

50 Hostilities recommenced.

On his arrival, William refused him admittance to his presence, without paying him homage. Malcom offered this in the same manner as had been done by his predecessors, that is, on the confines of the two kingdoms; but this being rejected by William, Malcolm returned to Scotland in a rage, and prepared again for war.

51 Malcolm killed at the siege of Alnwick castle.

The first of Malcolm's military operations now proved fatal to him; but the circumstances of his death are variously related. According to the Scots historians, Malcolm having laid siege to Alnwick, and reduced the place to such straits, that a knight came out of the castle, having the keys on the point of a spear, and pretending that he designed to lay them at Malcolm's feet; but instead of this, he ran him through the eye with the spear, as soon as he came within reach. They add, that prince Edward, the king's eldest son, was mortally wounded in attempting to revenge his father's death. The English historians, on the other hand, contend, that the Scots were surprised in their camp, their army entirely defeated, and their king killed. On this occasion the Scots historians also inform us, that the family of Piercy received its name; the knight who killed the Scots king having been surnamed *Pierce-eye*, from the manner in which he gave that monarch the fatal stroke. Queen Margaret, who was at that time lying ill in the castle of Edinburgh, died four days after her husband.

After the death of Malcolm Canmore, which happened in the year 1093, the throne was usurped by his brother Donald Bane; who, notwithstanding the great virtues and glorious atchievements of the late king, had been at the head of a strong party during the whole of his brother's reign. The usurper, giving way to the barbarous prejudices of himself and his countrymen, expelled out of the kingdom all the foreigners whom Malcolm had introduced, and obliged them to take refuge in England. Edgar himself had long resided at the English court, where he was in high reputation; and, by his interest there, found means to rescue his nephew young Edgar, the king of Scotland's eldest son, out of the hands of the usurper Donald Bane. The favour he showed to him, however, produced an accusation against himself, as if he designed to adopt young Edgar as his son, and set him up as a pretender to the English throne. This accusation was preferred by an Englishman whose name was *Orgar*; but, as no legal proofs of the guilt could be obtained, the custom of the times rendered a single combat between the parties unavoidable. Orgar was one of the strongest and most active men in the kingdom; but the age and infirmities of Edgar allowed him to be defended by another. For a long time none could be found who would enter the lists with this champion; but at last one Godwin of Winchester, whose family had been under obligations to Edgar or his ancestors, offered to defend his cause. Orgar was overcome and killed: and, when dying, confessed the falsehood of his accusation. The conqueror obtained all the lands of his adversary, and William lived ever afterwards on terms of the strictest friendship with Edgar.

52 The throne usurped by Donald Bane.

53 A single combat.

This combat, trifling as it may seem to us, produced very considerable effects. The party of Edgar and his brother's (who had likewise taken refuge at the English court) revived in Scotland, to such a degree, that Donald was obliged to call in the Danes and Norwegians to his assistance. In order to engage them more effectually to his interest, the usurper yielded up to them the Orkney and Shetland islands; but when his new allies came to his assistance, they behaved in such a manner as to become more intolerable to the Scots than ever the English had been. This discontent was greatly increased when it was found that William designed to place on the throne of Scotland a natural son of the late Malcolm, named *Duncan*, who had served in the English armies with great reputation. Donald attempted to maintain himself on the throne by the assistance of his Norwegian allies; but, being abandoned by the Scots, he was obliged to fly to the isles, in order to raise more forces; and in the mean time Duncan was crowned at Scone with the usual solemnity.

54 Donald yields up the Orkney and Shetland islands to the Danes.

The Scots were now greatly distressed by two usurpers who contended for the kingdom, each of them supported by a foreign army. One of them, however, was soon dispatched. Malpedir, thane of Mearns, surprised Duncan in the castle of Mentieth, and killed him; after which he replaced Donald on the throne. The affection of the Scots, however, was by this time entirely alienated from Donald, and a manifest intention of calling in young Edgar was shown. To prevent this, Donald offered the young prince all that part of Scotland which lay to the southward of the Forth; but the terms were rejected, and the messengers who brought

Scotland. brought them were put to death as traitors. The king of England also, dreading the neighbourhood of the Norwegians, interposed in young Edgar's favour, and gave Atheling the command of an army in order to restore his nephew. Donald prepared to oppose his enemies with all the forces he could raise; but was deserted by the Scots, and obliged to flee: his enemies pursued him so closely, that he was soon taken; and being brought before Edgar, he ordered his eyes to be put out, condemning him at the same time to perpetual banishment, in which he died some time after.

55 Donald deserted by Edgar.

The historians of these times inform us, that this revolution was owing to the interposition of St Cuthbert, who appeared to Edgar, informing him that he should prove victorious, provided he repaired next day to his church, and received his banner from the hands of the canons; which he accordingly did, and proved ever afterwards a most grateful votary to his patron. During his reign a strict friendship subsisted between the courts of England and Scotland; owing to the marriage of Henry I. of England with the Princess Matilda, sister to Edgar. This has given occasion to the English historians to assert that Edgar held the kingdom of Scotland as a feudatory of Henry; and to this purpose have forged certain writings, by which Edgar acknowledges "That he held the kingdom of Scotland by gift from his Lord William king of England; and with consent of his said lord, he gives to Almighty God, and the church of Durham, and to the glorious bishop of St Cuthbert, and to bishop William, and to the monks of Durham, and their successors, the mansions of Berwick and Coldingham, with several other lands possessed by his father Malcolm: and this charter is granted in the presence of bishop William, and Turgot the prior: and confirmed by the crosses of Edgar his brother, and other noblemen." But that these writings are forged, appears from the non-existence of the original charter, and from their being related in quite a different manner by some other authors.—For the same purpose a seal has been forged of Edgar sitting on horseback, with a sword in his right hand, and a shield on his left arm, within a border of France. But this last circumstance is a sufficient proof of the forgery; since, in the same repository in which this seal is kept, there are five charters of the same Edgar, which are undoubtedly genuine: and on the seals belonging to them he is represented sitting on two swords placed across, with a sceptre in one hand, a sword in the other, a royal diadem on his head, with this inscription round it, SCOTORUM BASILEUS, which the best English antiquaries allow to have been a title denoting independency.

56 Carries the English historians.

57 Alexander I.

After a reign of nine years, Edgar died at Dundee, in the year 1107; and was succeeded by his brother Alexander I. surnamed the *Fierce* from the impetuosity of his temper. On his accession to the throne, however, the Scots were so ignorant of his true character, on account of his appearance of piety and devotion, that the northern parts of the kingdom were soon filled with ravages and bloodshed, by reason of the wars of the chieftains with each other. Alexander immediately raised an army, and marching into Moray and Ross-shire, attacked the insurgents separately; and having subdued them all, he put great numbers of them to death. He then set himself to reduce the exorbitant power of the nobles, and to deliver the common people from the oppression under which they groaned. A remarkable instance of this appeared on his return from the expedition just now mentioned. In passing through the Mearns, he met with a widow, who complained that her husband and son had been put to death by the young earl their superior. Alexander immediately alighted from his horse, and swore that he would not remount him till he had inquired into the justice of the complaint; and, finding it to be true, the offender was hanged on the spot. These vigorous proceedings prevented all attempts at open rebellion; but produced many conspiracies among the profligate part of his private subjects, who had been accustomed to live under a more remiss government. The most remarkable of these took place while the king was engaged in building the castle of Balcedgar, so called in memory of his brother Edgar, who had laid the foundation-stone. It was situated in the Carse of Gowrie, which, we are told, had formerly belonged to Donald Bane, but afterwards came to the crown, either by donation or forfeiture. The conspirators bribed one of the king's chamberlains to introduce them at night into the royal bed-chamber: but Alexander, alarmed at the noise, drew his sword, and killed six of them; after which, by the help of a knight named *Alexander Carron*, he escaped the danger, by fleeing into Fife. The conspirators chiefly resided in the Mearns, to which Alexander once more repaired at the head of an army; but the rebels retreated northwards, and crossed the Spey. The king pursued them across that river, defeated them, and brought to justice all that fell into his hands. In this battle, Carron distinguished himself so eminently, that he obtained the name of *Skrimgeour* or *Skrimzeour*; which indeed is no other than the English word *skrimpher* or *fighter*.

58 Administers justice vigorously.

59 National disturbances.

60 His exploits in England.

The next remarkable transaction of Alexander's reign, as recorded by the English historians, was his journey into England, where he paid a visit to Henry I. whom he found engaged in a war with the Welsh. The occasion of it was this: Henry had planted a colony of Flemings on the borders of Wales, in order to keep that turbulent people in awe, as well as to introduce into his kingdom the manufactures for which the Flemings were famous. The Welsh, jealous of this growing colony, invaded England; where they defeated the earl of Chester and Gilbert Strongbow, the two most powerful of the English subjects. Alexander, in virtue of the fealty which he had sworn for his English possessions, readily agreed to lead an army into Wales. There he defeated one of the chieftains, and reduced him to great straits; but could not prevent him from escaping to Griffith prince of North Wales, with whom he was closely allied. Henry also marched against the enemy, but with much worse success in the field than Alexander; for he lost two-thirds of his army, with almost his whole baggage, by fatigue, famine, and the attacks of the Welsh. This loss, however, he made up in some measure by his policy; for having found means to raise a jealousy between the two Welsh chiefs, he induced them to conclude a peace, but not without restoring all his lands to the one, and paying a considerable sum of money to the other. Alexander died in 1124, after a reign of seventeen years; and was buried at Dunfermline.

61 Wars with the English.

This prince, dying a bachelor, was succeeded by his younger brother David; who interfered in the affairs

Scotland.

of England, and took part with the empreſs Maud in the civil war ſhe carried on with Stephen. In 1136, David met his antagoniſt at Durham; but as neither party cared to venture an engagement, a negociation took place, and a treaty was concluded. This, however, was obſerved but for a ſhort time; for, in the following year, David again invaded England, on ſome frivolous pretences. He defeated Stephen at Roxburgh; and forced him to retreat precipitately, after loſing one half of his army. Next year he renewed his invaſion; and, though he himſelf was a man of great mildneſs and humanity, he ſuffered his troops to commit ſuch outrages, as firmly united the Engliſh in oppoſition to him. His grand-nephew William cut in pieces the vanguard of the Engliſh army at Clithero; after which he ravaged the country with ſuch cruelty, that the inhabitants became exaſperated beyond meaſure againſt him. New aſſociations were entered into againſt the Scots; and the Engliſh army receiving great reinforcements from the ſouthward, advanced to Northallerton, where the famous ſtandard was produced. The body of this ſtandard was a kind of box which moved upon wheels, from which aroſe the maſt of a ſhip ſurmounted by a ſilver croſs, and round it were hung the banners of St Peter, St John de Beverly, and St Wilfred. Standards of this kind were common at that time on the continent of Europe; and ſo great confidence had the Engliſh in this ſtandard, that they now thought themſelves invincible. They had, however, a much more ſolid ground of confidence, as being much better armed than their antagoniſts. The armies met at a place called *Culton Moor*. The firſt line of the Scots army was compoſed of the inhabitants of Galloway, Carric, Kyle, Cunningham, and Renfrew. Theſe by ſome hiſtorians are called *Picts*, and are ſaid to have had a prince of their own, who was a feudatory to David. The ſecond line conſiſted of the Lothian men, by which we are to underſtand the king's ſubjects in England as well as the ſouth of Scotland, together with the Engliſh and Normans of Maud's party. The third line was formed of the clans under their different chieftains; but who were ſubject to no regular command, and were always impatient to return to their own country when they had acquired any booty. The Engliſh ſoldiers having ranged themſelves round their ſtandard, diſmounted from their horſes, in order to avoid the long lances which the firſt line of the Scots army carried. Their front-line was intermixed with archers; and a body of cavalry, ready for purſuit, hovered at ſome diſtance. The Picts, beſides their lances, made uſe of targets; but, when the Engliſh cloſed with them, they were ſoon diſordered and driven back upon the centre, where David commanded in perſon. His ſon made a gallant reſiſtance, but was at laſt forced to yield: the laſt line ſeems never to have been engaged. David, ſeeing the victory decided againſt him, ordered ſome of his men to ſave themſelves by throwing away their badges, which it ſeems Maud's party had worn, and mingling with the Engliſh; after which he himſelf, with his ſhattered forces, retreated towards Carliſle. The Engliſh hiſtorians ſay, that in this battle the Scots were totally defeated, with the loſs of 10,000 men; but this ſeems not to be the caſe, as the Engliſh did not purſue, and the Scots were in a condition for carrying on the war next year. However, there were now no great exploits performed on either ſide; and a peace was concluded, by which Henry prince of Scotland was put in poſſeſſion of Huntingdon and Northumberland, and took an oath of fealty to Stephen. David continued faithful to his niece the empreſs as long as he lived; and died at Carliſle in the year 1153, after a glorious reign of ſomewhat more than 29 years.

62 Battle of the Standard.

63 The Scots entirely defeated.

David was ſucceeded by his grandſon Malcolm IV. ſurnamed the *Maiden*, on account of his continence. He appears to have been a weak and ſuperſtitious prince, and died of a depreſſion of ſpirits in the year 1165. He was ſucceeded by his brother William I. who immediately entered into a war with Henry II. of England, on account of the earldom of Northumberland, which had been given up by Malcolm; but Henry, finding his affairs in a very embarraſſed ſituation, conſented to yield up this county, on William's paying him homage, rather than continue the miſeries of war. In 1172, he attempted to avail himſelf of the unnatural war which Henry's ſons carried on againſt their father, and invaded England. He divided his army into three columns: the firſt of which laid ſiege to Carliſle; the ſecond he himſelf led into Northumberland; and the king's brother, David, advanced with the third into Leiceſterſhire. William reduced the caſtles of Burgh, Appleby, Warkworth, and Garby; and then joined that diviſion of his army which was beſieging Carliſle. The place was already reduced to ſuch ſtraits, that the governor had agreed to ſurrender it by a certain day, provided it was not relieved before that time: on which the king, leaving ſome troops to continue the ſiege, inveſted a caſtle with ſome of the forces he had under his command, at the ſame time ſending a ſtrong reinforcement to his brother David; by which means he himſelf was left with a very ſmall army, when he received intelligence that a ſtrong body of Engliſh under Robert de Stuteville and his ſon were advancing to ſurpriſe him.—William, ſenſible of his inability to reſiſt them, retired to Alnwick, to which he inſtantly laid ſiege; but in the mean time acted in ſuch a careleſs and unthinking manner, that his enemies actually effected their deſigns. Having dreſſed a party of their ſoldiers in Scots habits, they took the king himſelf priſoner, and carried him, with his feet tied under the belly of a horſe, to Richmond Caſtle. He was then carried in chains before Henry to Northampton, and ordered to be tranſported to the caſtle of Falaiſe in Normandy, where he was ſhut up with other ſtate priſoners. Soon after this an accommodation took place between Henry and his ſons, and the priſoners on both ſides were ſet at liberty, William only excepted, who bore his confinement with great impatience. Of this Henry took the advantage, to make him pay homage for the whole kingdom of Scotland, and acknowledge that he held it only as a feu of the crown of England; and, as a ſecurity, he was obliged to deliver into the hands of Henry all the principal forts in Scotland, *viz.* the caſtles of Roxburgh, Berwick, Jedburgh, Edinburgh, and Stirling; William at the ſame time agreeing to pay the Engliſh garriſons which were put into theſe caſtles. David, the king's brother, with 20 barons, who were preſent at the ſigning of this ſhameful convention, were put into the hands of Henry as hoſtages for William's good faith; after which the king was ſet at liberty, and returned to Scotland.

64 William engages in a war with Henry II. of England.

65 He is taken priſoner by the Engliſh and obliged to do homage for his kingdom.

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The affairs of Scotland were now in the greatest confusion. The people of Galloway, at the head of whom were two noblemen or princes called *Othred* and *Gilbert*, had taken the opportunity of asserting their independency on the crown of Scotland; and, having expelled all the Scots officers out of the country, they demolished all the forts which William had erected in their country, and put to death all the foreigners. But in the mean time a quarrel ensuing between the two chiefs, Othred was murdered by Gilbert, who immediately applied to Henry for protection.

Henry, in order to give all possible sanction to the convention betwixt him and William, summoned him to meet him and his son at York. William obeyed the summons, and along with him appeared all the great nobility and landholders; who confirmed the convention of Falaise, swore fealty to Henry, and put themselves and their country under his protection. In the mean time, Gilbert, who was at the head of the rebels in Galloway, had offered to put himself and his people under the protection of the king of England, and to pay to Henry 2000 merks of silver yearly, with 500 cows and as many hogs, by way of tribute: however, Henry, that he might oblige his new feudatory William, refused to have any concern in the affair. On this, William ordered his general Gilchrist to march against him; which he did with such success, that Gilbert was entirely defeated, and Galloway again reduced under the dominion of Scotland. Very soon after this victory, Gilchrist fell under the king's displeasure on the following occasion. He had married Matilda, sister to William; and on suspicion, or proof, of her incontinence, put her to death at a village called *Maynes*, near Dundee. The king being highly displeased at such a gross affront to himself, summoned Gilchrist to take his trial for the murder: but as the general did not choose to make his appearance, his estates were confiscated, his castles demolished, and he himself banished. He took refuge in England; but as it had been agreed in the convention between William and Henry that the one should not harbour the traiterous subjects of the other, Gilchrist was forced to return to Scotland with his two sons. There they were exposed to all the miseries of indigence, and in perpetual fear of being discovered, so that they were obliged to skulk from place to place. William, on his return from an expedition against an usurper whom he had defeated, happened to observe three strangers, who, though disguised like rustics, appeared by their noble mien to be above the vulgar rank. William, who first discovered them, was confirmed in this apprehension, by seeing them strike out of the high road, and endeavour to avoid notice. He ordered them to be seized and brought before him. The oldest, who was Gilchrist himself, fell upon his knees before him, and gave such a detail of his misfortunes as drew tears from the eyes of all present; and the king restored him to his former honours and estates. From the family of this Gilchrist that of the Ogilvies is said to be descended.

66 Adventures of William's general Gilchrist.

67 Origine of family Ogilvy.

The Scots continued to be in subjection to the English until the accession of Richard I. This monarch being a man of romantic valour, zealously undertook an expedition into the Holy Land against the Turks, according to the superstition of the times. That he might secure the quiet of his dominions in his absence, he determined to make the king of Scotland his friend; and for this purpose, his thought nothing could be more acceptable than releasing him and his subjects from that subjection which even the English themselves considered as forced and unjust. However, he determined not to lose this opportunity of supplying himself with a sum of money, which could not but be absolutely necessary in such an expensive and dangerous undertaking. He therefore made William pay him 10,000 merks for this release: after which he entered into a convention, which is still extant; and in this he acknowledges, that "all the conventions and acts of submission from William to the crown of England had been extorted from him by unprecedented writings and duresse." This transaction happened in the year 1189.

68 William released from homage by Richard I.

The generosity of Richard met with a grateful return from William; for when Richard was imprisoned by the emperor of Germany in his return from the Holy Land, the king of Scotland sent an army to assist his regency against his rebellious brother John, who had wickedly usurped the throne of England. For this Richard owned his obligation in the highest degree; but William afterwards made this an handle for such high demands as could not be complied with. Nevertheless, the two monarchs continued in friendship as long as Richard lived. Some differences happened with King John about the possession of Northumberland and other northern counties: but these were all finally adjusted to the mutual satisfaction of both parties; and William continued a faithful ally of the English monarch till his death, which happened in the year 1214, after a reign of 49 years.

69 Alexander II.

William was succeeded by his son Alexander II. a youth of 16. He revived his claim to Northumberland and the other northern counties of England; but John, supposing that he had now thoroughly subdued the English, not only refused to consider the demands of Alexander, but made preparations for invading Scotland. John had given all the country between Scotland and the river Tees to Hugh de Baliol and another nobleman, upon condition of their defending it against the Scots. Alexander fell upon Northumberland, which he easily reduced, while John invaded Scotland. Alexander retired to Melros, in order to defend his own country; upon which John burnt the towns of Wark, Alnwick, and Morpeth, and took the strong castles of Roxburgh and Berwick. He next plundered the abbey of Coldingham, reduced Dunbar and Haddington, ravaging the country as he passed along. His next operation was directed against Edinburgh; but being opposed by Alexander at the head of an army, he precipitately marched back. Alexander did not fail to pursue; and John, to cover his retreat, burnt the towns of Berwick and Coldingham. In this retreat the king of England himself set his men an example of barbarity, by setting fire every morning to the house in which he had lodged the preceding night. In short, such desolation did John spread all around him, that Alexander found it impossible to continue his pursuit; for which reason he marched westward, and invaded England by the way of Carlisle. This place he took and fortified; after which he marched south as far as Richmond, receiving homage from all the great barons as he went along.

70 War with John king of England.

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along. At Richmond he was again ſtopped by John's ravages, and obliged to return through Weſtmoreland to his own dominions.

When the Engliſh barons found it neceſſary to put themſelves under the protection of Louis, ſon to the king of France, that prince, among other acts of ſovereignty, ſummoned Alexander to do him homage; but the latter being then engaged in the ſiege of Carliſle, which had fallen into the hands of King John, he could not immediately attend. In a ſhort time Alexander found himſelf obliged to abandon this enterpriſe: after which he laid ſiege to Barnard-caſtle; but being baffled here alſo, marched ſouthwards through the whole kingdom of England, and met Louis at London or Dover, where the prince confirmed to him the rights to Northumberland, Cumberland, and Weſtmoreland. He continued a faithful ally to Louis and the barons in their wars with John; and, in 1216, brought a freſh army to their aſſiſtance, when their affairs were almoſt deſperate. This once more turned the ſcale againſt John; but he ſoon after dying, the Engliſh eaſily became reconciled to the government of Henry III. and the party of Louis dwindled every day, till at laſt he was obliged to drop all thoughts of being king of England.

As long as Louis continued in England, Alexander proved faithful to his intereſt; but, in 1217, he was on ſuch good terms with Henry as to demand his eldeſt ſiſter, the Princeſs Joan, for a wife. His requeſt was granted, and in 1221 he eſpouſed the princeſs; while his eldeſt ſiſter Margery was married to Hubert de Burgh juſticiary of England, and his ſecond ſiſter to Gilbert earl Marſhal, the two greateſt ſubjects in England.

As long as the queen of Scotland lived, a perfect harmony ſubſiſted between the Scots and Engliſh: but in 1239 Queen Joan died without children; and Alexander ſoon after married Mary, the daughter of Egelrand de Coucy, a young and beautiful French lady, by whom he had a ſon named *Alexander*, in 1241. From this time a coolneſs took place between the two courts, and many differences aroſe; but no hoſtilities were commenced on either ſide during the lifetime of Alexander, who died in 1249 in the 35th year of his reign.

71 Alexander III.

Immediately after the death of his father, Alexander III. took poſſeſſion of the throne. He is the firſt of the Scots kings of whoſe coronation we have any particular account. We are told, that the ceremony was performed by the biſhop of St Andrew's, who girded the king with a military belt, probably as an emblem of his temporal juriſdiction. He then explained in Latin, and afterwards in Gaelic, the laws and oaths relating to the king; who agreed to and received them all with great appearance of joy, as he alſo did the benediction and ceremony of coronation from the ſame prelate. After the ceremony was performed, a Highlander, probably one of thoſe who went under the denomination of *Sannachies*, repeated on his knees before the throne, in his own language, the genealogy of Alexander and his anceſtors, up to the firſt king of Scotland.

72 Marries the daughter of Henry III. of England.

In 1250, the king, though no more than ten years of age, was married to the daughter of Henry, who now thought it a proper opportunity to cauſe him do homage for the whole kingdom of Scotland. But Alexander, notwithſtanding his youth, replied with great ſenſe and modeſty, that his buſineſs in England was matrimony; that he had come thither under Henry's protection and invitation; and that he was no way prepared to anſwer ſuch a difficult queſtion.

Henry ſeems to have been encouraged to make this attempt by the diſtracted ſtate of the Scots affairs at that time; for, during the minority of the king, the nobility threw every thing into confuſion by their diſſenſions with one another. The family of Cummin were now become exceedingly powerful; and Alexander II. is blamed by Buchanan for allowing them to obtain ſuch an exorbitant degree of power, by which they were enabled almoſt to ſhake the foundation of government. Notwithſtanding the king's refuſal to ſubmit to the homage required of him, they imagined that Henry's influence was now too great; and fearing bad conſequences to themſelves, they withdrew from York, leaving Henry in full poſſeſſion of his ſon-in-law's perſon. Henry, however, to ſhow that he deſerved all the confidence which could be repoſed in him, publicly declared, that he dropped all claim of ſuperiority with regard to the crown of Scotland, and that he would ever afterwards act as the father and guardian of his ſon-in-law; confirming his aſſurances by a charter. Yet when Alexander returned to Scotland, he found they had made a ſtrong party againſt his Engliſh connections. They now exclaimed, that Scotland was no better than a province of England; and having gained almoſt all the nobility over to this opinion, they kept the king and queen as two ſtate-priſoners in the caſtle of Edinburgh. Henry had ſecret intelligence of theſe proceedings; and his queen privately ſent a phyſician whom ſhe could truſt, to inquire into her daughter's ſituation. Having found means of being admitted into the young queen's preſence, ſhe gave him a moſt lamentable account of her ſituation. She ſaid, that the place of their confinement was very unwholeſome, in conſequence of which their health was in imminent danger; and that they had no concern in the affairs of government. Hiſtorians do not inform us by what means they were reduced to this diſmal ſituation; only in general, that the Cummins uſurped the whole power of the ſtate. Henry did not well know how to act. If he proceeded at once to violent meaſures, he was afraid of the lives of his daughter and ſon-in-law; and, on the other hand, by a more cautious conduct, he left them expoſed to the wicked attempts of thoſe who kept them in thraldom, ſome of whom, he very well knew, had deſigns on the crown itſelf. By advice of the Scots royaliſts, among whom were the earls of Dunbar, Fife, Strathearne, Carric, and Robert de Bruce, Henry aſſembled his military tenants at York, from whence he himſelf advanced to Newcaſtle, where he publiſhed a manifeſto, diſclaiming all deſigns againſt the peace or independency of Scotland; declaring, that the forces which had been collected at York were deſigned to maintain both; and and that all he meant was to have an interview with the king and queen upon the borders. From Newcaſtle he proceeded to Wark, where he privately diſpatched the Earl of Gloceſter, with his favourite John Manſel, and a train of truſty followers, to gain admiſſion into the caſtle of Edinburgh, which was then held by John Baliol and Robert de Roſs, noblemen of great influence both in England and Scotland. The Earl and Manſel gained

73 Is confined with his queen by his rebellious ſubjects.

74 They are ſet at liberty by Henry.

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gained admittance into the castle in disguise, on pretence of their being tenants to Baliol and Ross; and their followers obtained access on the same account, without any suspicion, till they were sufficiently numerous to have mastered the garrison, had they met with any resistance. The queen immediately informed them of the thraldom and tyranny in which she had been kept; and among other things declared, that she was still a virgin, as her jailors obliged her to keep separate from her husband. The English, being masters of the castle, ordered a bed to be prepared that very night for the king and queen; and Henry, hearing of the success of his party, sent a safe-conduct for the royal pair to meet him at Alnwick. Robert de Ross was summoned by Henry to answer for his conduct; but throwing himself at the king's feet, he was punished only by the sequestration of his estate, as was John Baliol by a heavy fine, which the king of England reserved entirely to his own use.

Alexander and his queen were attended to Alnwick by the heads of their party; and when they arrived, it was agreed that Henry should act as his son-in-law's guardian; in consequence of which, several regulations were made in order to suppress the exorbitant power of the Cummins. That ambitious family, however, were all this time privately strengthening their party in Scotland, though they outwardly appeared satisfied with the arrangements which had been made. This rendered Alexander secure; so that, being off his guard, he was surprised when asleep in the castle of Kinross by the earl of Menteith, who carried him to Stirling. The Cummins were joined in this treason by Sir Hugh de Abernethy, Sir David Lochore, and Sir Hugh de Barclay; and, in the mean time, the whole nation was thrown into the utmost confusion. The great seal was forcibly taken from Robert Stuterville, substitute to the chancellor the bishop of Dunkeld; the estates of the royalists were plundered; and even the churches were not spared. The king at last was delivered by the death of the earl of Menteith, who is said to have been poisoned by his wife, in order to gratify her passion for a young English gentleman named *John Russel*. This charge, however, was never proved; but it is certain that the earl died at a juncture very critical for Scotland, and that his death disconcerted all the schemes of his party, which never afterwards could make head against the royalists.

75 Alexander carried off by rebels, delivered.

Alexander being thus restored to the exercise of regal authority, acted with great wisdom and moderation. He pardoned the Cummins and their adherents, upon their submitting to his authority; after which, he applied himself to the regulation of his other affairs: but a storm was now ready to break upon him from another quarter. We have already seen, that the usurper Donald Bane, brother to Malcom Canmore, had engaged to deliver up the isles of Orkney and Shetland to the king of Norway, for assisting him in making good his pretensions to the crown of Scotland. Haquin, the king of Norway, at this time alleged, that these engagements extended to the delivering up the islands of Bute, Arran, and others in the Frith of Clyde, as belonging to the Ebudæ or Western isles; and as Alexander did not think proper to comply with these demands, the Norwegian monarch appeared with a fleet of 160 sail, having on board 20,000 troops, who landed and took the castle of Air. Alexander immediately dispatched ambassadors to enter into a treaty with Haquin; but the latter, flushed with success, would hearken to no terms. He made himself master of the isles of Bute and Arran; after which he passed over to Cunningham. Alexander, prepared to oppose him, divided his army into three bodies. The first was commanded by Alexander high steward of Scotland (the great grandfather of Robert II), and consisted of the Argyle, Athol, Lenox, and Galloway men. The second was composed of the inhabitants of Lothian, Fife, Merse, Berwick, and Stirling, under the command of Patrick earl of Dunbar. The king himself led the centre, which consisted of the inhabitants of Perthshire, Angus, Mearns, and the northern counties.—Haquin, who was an excellent commander, disposed his men in order of battle, and the engagement began at a place called *Largs*. Both parties fought with great resolution; but at last the Norwegians were defeated with dreadful slaughter, no fewer than 16,000 of them being killed on the spot. The remainder escaped to their ships; which were so completely wrecked the day after, that Haquin could scarce find a vessel to carry him with a few friends to Orkney, where he soon after died of grief.

76 Defeats the Norwegians.

In consequence of this victory, Owen or John king of the island of Man submitted to Alexander; and his example was followed by several other princes of the islands belonging to the Norwegians. Haquin's son, Magnus, a wise and learned prince, soon after arrived in Scotland with fresh reinforcements, and proposed a treaty: but Alexander, instead of listening to an accommodation, sent the earls of Buchan and Murray, with Allen the chamberlain, and a considerable body of men, to the western islands, where they put to the sword some of the inhabitants, and hanged their chiefs for having encouraged the Norwegian invasion. In the mean time, Magnus returned to Norway; where a treaty was at last concluded between him and Alexander. By this Magnus renounced all right to the contested islands; Alexander at the same time consenting to pay him 1000 merks of silver in the space of two years, and 100 yearly ever after, as an acknowledgement for these islands. To cement the friendship more firmly, a marriage was concluded between Margaret the daughter of Alexander, and Eric the son and heir of Magnus, who was also a child; and, some years after, when the parties were of proper age, the marriage was consummated.

77 Regains the islands of Shetland, Orkney, &c.

From this time to the accession of Edward I. of England, we find nothing remarkable in the history of Scotland. That prince, however, proved a more cruel enemy to this country than it had ever experienced. Alexander was present at the coronation of Edward, who was then newly arrived from the Holy Land, where he had been on a crusade. Soon after this Alexander paid him homage for his English estates; particularly for the lands and lordship of Penrith and others, which Henry had given him along with his daughter. He proved an excellent ally to Edward in his wars against the French; and the latter passed a charter, by which he acknowledged that the services of the king of Scotland in those wars were not in consequence of his holding lands in England, but as an ally to his crown. Even at this time, however, Edward had

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78 Designs of Edward I. against the liberties of Scotland.

had formed a design on the liberties of that kingdom; for in the charter just mentioned, he inserted a salvo, acknowledging the superiority, by which he reserved his right to the homage of the kingdom of Scotland, when it should be claimed by him or his heirs. The bishop of Norwich suggested this salvo: and this was the reason why Alexander would not perform the homage in person, but left it to be performed by Robert Bruce earl of Carrie; Alexander standing by, and expressly declaring, that it was only paid for the lands he held in England.—No acts of hostility, however, took place during the lifetime of Alexander, who was killed on the 19th of March 1285, in the 45th year of his age, by his horse rushing down the black rock near Kinghorn as he was hunting.

Both before and after the death of Alexander, the great subjects of Scotland seemed to have been sensible of Edward's ambitious designs. On the marriage of Margaret with Eric prince of Norway, the states of Scotland passed an act obliging themselves to receive her and her heirs as queen and sovereigns of Scotland. Edward at that time was in no condition to oppose this measure, in which the Scots were unanimous; and therefore contented himself with forming factions among the leading men of the country. Under pretence of resuming the cross, he renewed his intrigues at the court of Rome, and demanded leave from the pope to collect the tenths in Scotland; but his holiness replied, that he could make no such grant without the consent of the government of Scotland. On the death of Margaret queen of Norway, her daughter, in consequence of the act above-mentioned, was recognized by the states as queen of Scotland. As she was then but two years old, they came to a resolution of excluding from all share in the government, not only Edward I. but their queen's father; and they accordingly established a regency from among their own number, consisting of the six following noblemen; viz. Robert Wishart bishop of Glasgow, Sir James Cummin of Badenoch, senior, James lord high steward of Scotland, who were to have the superintendency of all that part of Scotland which lay to the south of the Forth; William Fraser bishop of St Andrews, Duncan M'Duff earl of Fife, and Alexander Cummin earl of Buchan, who were to have the direction of all affairs to the north of the same river.—With these arrangements Eric was exceedingly displeased, as considering himself as the only rightful guardian of his own child. He therefore cultivated a good correspondence with Edward, from whom he had received considerable pecuniary favours; and perceiving that the states of Scotland were unanimous in excluding all foreigners from the management of their concerns, he fell in with the views of the king of England, and named commissioners to treat with those of Edward upon the Scots affairs. These negociations terminated in a treaty of marriage between the queen of Scotland and Edward prince of Wales, young as they both were. This alarmed the states of Scotland, who resolved not to suffer their queen to be disposed of without their consent. It was therefore agreed by the commissioners on both sides, to acquaint them with the result of their conferences, and to demand that a deputation should be sent up for settling the regency of Scotland, or, in other words, for putting the sovereign power into the hands of the two kings. As the two parties, however, were within the prohibited degrees of consanguinity, being first cousins, a dispensation was applied for to Pope Boniface, who granted it on condition that the peers of Scotland consented to the match.

79 Treaty of marriage between the young queen of Scotland and the prince of Wales.

Though the Scots nobility were very much against this match, they could not refuse their consent to it when proposed by the father and grand-uncle of their young queen. They therefore appointed the bishops of St Andrew's and Glasgow, with Robert Bruce lord of Annandale, and John Cummin, to attend as their deputies, but with a salvo to all the liberties and honours of the realm of Scotland; to which Edward agreed. These deputies met at Salisbury with those of England and Norway; and it was at last agreed, 1. That the young queen should be sent from Norway (free of all marriage-engagements) into England or Scotland. 2. That if the queen came to England, she should be at liberty to repair to Scotland as soon as the distractions of that kingdom should be settled: that she should, on her arrival in her own dominions, be free of all matrimonial contracts; but that the Scots should engage not to dispose of her in marriage without her father or Edward's consent. 3. The Scots deputies promised to give such security as the Norwegian commissioners should require, that the tranquillity of the nation should be settled before her arrival. 4. That the commissioners of Scotland and Norway, joined with commissioners from England, should remove such regents and officers of state in Scotland as should be suspected of disaffection, and place others in their stead. If the Scots and Norwegian commissioners should disagree on that or any other head relating to the government of Scotland, the decision was to be left to the arbitration of English commissioners.

The party of Edward was now so strong in Scotland, that no opposition was made to the late agreement, in a parliament held at Brechin to deliberate upon the settlement of the kingdom. It is uncertain whether he communicated in form to the Scottish parliament the pope's dispensation for the marriage: but most probably he did not; as, in a letter written to him by the states of Scotland, they mention this as a matter they heard by report. On the whole, however, they highly approved of the marriage, upon certain conditions to which Edward was previously to agree; but the latter, without waiting to perform any conditions, immediately sent for the young queen from Norway. This exceedingly displeased Eric, who was by no means inclined to put his daughter into the hands of a prince whose sincerity he suspected, and therefore shifted off the departure of the princess till he should hear farther from Scotland. Edward, alarmed at this, had again recourse to negociation; and ten articles were at last drawn up, in which the Scots took all imaginable precautions for the safety and independency of their country. These articles were ratified by Edward on the 28th of August 1289; yet, even after the affair of the marriage was fully settled, he lost no time in procuring as strong a party as he could. At the head of these were the bishop of St Andrew's and John Baliol. That prelate, while he was in England, was highly caressed by Edward, from whom he had great expectations of preferment; and Baliol, having great estates in England, considered the latter as his sovereign. The bishop,

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ſhop, on his return to Scotland, acted as a ſpy for Edward, and carried on with him a ſecret correſpondence, informing him of all public tranſactions. It appears from this correſpondence, that the Scots were far from being unanimous as to the marriage. Bruce earl of Annandale ſuſpected, for ſome reaſon or other, that the young queen was dead; and, ſoon after Michaelmas 1290, aſſembled a body of forces, and was joined by the earl of Mar and Athol. Intelligence of theſe commotions was carried to Edward by Baliol; and the biſhop of St Andrew's adviſed Edward, in caſe the report of the queen's death ſhould prove true, to march a body of troops towards Scotland, in order to ſecure ſuch a ſucceſſor as he thought proper.

Edward, in the mean time, conſented to allow ambaſſadors to be ſent from Scotland to bring over the young queen; previous to which, he appointed the biſhop of Durham to be lieutenant in Scotland for the queen and her future huſband; and all the officers there, both civil and military, obliged themſelves to ſurrender their employments and fortreſſes to the king and queen (that is, to Edward) immediately on their arrival in Scotland. But while the moſt magnificent preparations were making for the reception of the young queen, certain intelligence of her death was received; but it is not certainly known whether this event happened before the arrival of the ambaſſadors in Norway or after her departure from that country.

80 Death of the queen.

The Scots were thrown into the utmoſt conſternation by the news of their queen's death; while, on the other hand, Edward was as well prepared as if he had known what was to happen. The ſtate of Scotland at this time indeed was to the laſt degree deplorable. The act of ſucceſſion eſtabliſhed by the late king had no farther operation, being determined by the death of the queen; and ſince the crown was rendered hereditary, there was no precedent by which it could be ſettled. The Scots, in general, however, turned their eyes upon the poſterity of David earl of Huntingdon, brother to the two kings Malcolm the Maiden and his ſucceſſor William, both of whom died without lawful iſſue. The earl had three daughters. Margaret, the eldeſt, was married to Allan lord of Galloway; the only iſſue of which marriage was Derverguill wife to John Baliol, who had a ſon of the ſame name, a competitor for the crown. The ſecond daughter, Iſabella, was married to Robert Bruce; and their ſon Robert was a candidate likewiſe. The third daughter, Ada, had been married to Henry Haſtings, an Engliſh nobleman, and predeceſſor to the preſent earl of Huntingdon. John Haſtings, the ſon of this marriage, was a third competitor; but as his claim was confeſſedly the worſt of the three, he only put in for a third of the kingdom, on the principle that his mother was joint-heir with her two ſiſters (c). Several other claimants now ſtarted up. Florence earl of Holland pretended to the crown of Scotland in right of his great grandmother Ada, the eldeſt lawful ſiſter of William, ſometime king; as did Robert de Pynkeny, in the right alſo of his great-grandmother Marjory, ſecond ſiſter of the ſame king William. Patrick Gallightly was the ſon of Henry Gallightly, a baſtard of William; William de Roſs was deſcended of Iſabel; Patrick earl of March, of Ilda or Ada; and William de Veſci, of Marjory; who were three natural daughters of king William. Roger de Mandeville, deſcended from Aufrie, another natural daughter of William, alſo put in his claim; but the right of Nicolas de Soulis, if baſtardy could give a right, was better than the former. His grandmother Marjory, the wife of Allan le Huiſſier, was a natural daughter of Alexander II. and conſequently ſiſter to Alexander III. John Cummin lord of Badenoch derived his claim from a more remote ſource, viz. Donald Bane, who uſurped the crown about 200 years before this time; but he was willing to reſign his pretenſions in favour of John Baliol. The latter indeed had ſurely the beſt right; and, had the ſucceſſion been regulated as it is in all hereditary kingdoms at this day, he would undoubtedly have carried it. Bruce and Haſtings, however, pleaded that they were preferable, not only to John Baliol the grandchild of Margaret, but alſo to Derverguill her daughter and his mother, for the following reaſon. Derverguill and they were equally related to their grandfather earl David: ſhe was indeed the daughter of his eldeſt daughter; but ſhe was a woman, they were men; and, ſaid they, the male in the ſame degree ought to ſucceed to ſovereignties, in their own nature impartible, preferable to the female.

81 Number of eti- for the wn.

Notwithſtanding this number of candidates, however,

(c) The pedigree of the three principal competitors will be fully underſtood from the following ſcheme.

David I. King of Scots.
|
Henry Prince of Scotland.
|
David Earl of Huntingdon, ſecond ſon.
|

3. Ada = Henry de Haſtings.	2. Iſabella = Robert Bruce.	1. Margaret = Allan of Galloway.
Henry de Haſtings.	ROBERT BRUCE, *competitor.*	John Baliol = Derverguill.
JOHN DE HASTINGS, *competitor.*		JOHN BALIOL, *competitor.*

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ever, it was soon perceived, that the claims of all of them might be cut off excepting two, viz. Baliol and Bruce, of whom the former had the preference with respect to hereditary right, and the latter as to popularity. Baliol had strongly attached himself to Edward's party; which being by far the most powerful in Scotland, gave him a decided superiority over Bruce. The event was, that Edward, by his own party most probably, though, some say, by the unanimous voice of the Scot's parliament, was appointed to decide between the two competitors. It soon appeared, however, that Edward had no mind to adjudge the crown to any person but himself; for, in an assembly held at Norham on the 10th of May 1291, Brabanzon the chief justice of England informed the members, "That his master was come thither in consideration of the state of the realm of Scotland, which was then without a king, to meet them, as *direct sovereign* of that kingdom, to do justice to the claimants of his crown, and to establish a solid tranquillity among his people; that it was not his intention to retard justice, nor to usurp the right of any body, or to infringe the liberties of the kingdom of Scotland, but to render to every one his due. And to the end this might be done with the more ease, he required the assent of the states *ex abundante*, and that they should own him as *direct sovereign* of the kingdom; offering, upon that condition, to make use of their counsels to do what justice demanded." The deputies were astonished at this declaration, and replied, that they were by no means prepared to decide on Edward's claim of superiority; but that Edward ought previously to judge the cause between the two competitors, and require homage from him whom he should choose to be king. Edward treated this excuse as trifling, and gave them till next day to consider of his demand. Accordingly, on that day, the assembly was held in Norham church, where the deputies from Scotland insisted upon giving no answer to Edward's demands, which could be decided only by the whole community; representing, at the same time, that numbers of the noblemen and prelates were absent, and that they must have time to know their sense of the affair. In consequence of this, Edward gave them a delay of three weeks; which interval he employed in multiplying claimants to the crown of Scotland, and in flattering each with hopes, if he would acknowledge his superiority. But when the assembly met, according to appointment, on the 2d of June following, they found the place of meeting surrounded by a numerous army of English. Edward had employed the bishop of Durham to draw up the historical evidence of his right to the crown of Scotland; which has since been published. In this paper mention is made of the fealty and homage performed by the kings of Scotland to the Anglo-Saxon kings of England; but no sufficient evidence is brought of any such homage being actually performed. As to the homage performed by the kings of Scotland from the time of William the Conqueror to that of the dispute between Bruce and Baliol, the Scots never denied it; but they contended, and indeed with justice, that it was performed for the lands which they held from the crown of England; and they alleged, that it was as far removed from any relation to a fealty or homage performed for the crown of Scotland, as the homage paid by the English monarchs to the crown of France was removed from all relation to the crown of England. With regard to the homage paid by William king of Scotland to Henry II. of England, it was not denied that he performed it for the whole kingdom of Scotland: but they pleaded, that it was void of itself, because it was extorted when William was a prisoner to Henry; and they produced Richard I.'s charters, which pronounced it to have been compulsive and iniquitous.

82 Edward declares himself sovereign of Scotland.

But, however urgent these reasons of the Scots might be, Edward was by no means disposed to examine into their merits. Instead of this, he closeted the several pretenders to the crown; and having found them all ready to comply with his measures, he drew up the following charter of recognition to be signed by them all.

"To all who shall hear this present letter.

83 The candidates sign an assent.

"We Florence earl of Holland, Robert de Bruce lord of Annandale, John Baliol lord of Galloway, John Hastings lord of Abergavenny, John Cummin lord of Badenoch, Patrick de Dunbar earl of March, John Vesci for his father Nicholas Soulis, and William de Ross, greeting in the Lord:

"Whereas we intend to pursue our right to the kingdom of Scotland; and to declare, challenge, and aver the same before him that hath most power, jurisdiction, and reason to try it; and the noble prince Edward, by the grace of God king of England, &c. having informed us, by good and sufficient reasons, that to him belongs the sovereign seigniory of the same: We therefore promise, that we will hold firm and stable his act; and that he shall enjoy the realm to whom it shall be adjudged before him. In witness whereof, we have set our seals to this writing, made and granted at Norham, the Tuesday after the Ascension, in the year of Grace 1291."

Edward then declared, by the mouth of his chancellor, that although, in the dispute which was arisen between the several claimants, touching the succession to the kingdom of Scotland, he acted in quality of sovereign, in order to render justice to whomsoever it was due; yet he did not thereby mean to exclude himself from the hereditary right which in his own person he might have to that crown, and which right he intended to assert and improve when he should think fit: and the king himself repeated this protestation with his own mouth in French. The candidates were then severally called upon by the English chancellor, to know whether they were willing to acknowledge Edward's claim of superiority over the crown of Scotland, and to submit to his award in disposing of the same; which being answered in the affirmative, they were then admitted to prove their rights. But this was mere matter of form; for all the force of England was then assembled on the borders in order to support the claims of Edward, and nothing now remained but to furnish him with a sufficient pretence for making use of it. He observed, that the Scots were not so unanimous as they ought to be in recognising his superiority, and that the submission, which had been signed by the candidates, was not sufficient to carry it into execution; for which reason he demanded that all the forts in Scotland should be put into his possession, that he might resign them to the successful candidate.

84 Edward demands possession of the fortified places in Scotland.

Though nothing could be more shameful than a tame com-

compliance with this laſt demand of Edward, the regency of Scotland without heſitation yielded to it alſo; for which they gave the following reaſons. "That whereas they (the ſtates of Scotland) had, with one aſſent, already granted that King Edward, as ſuperior lord of Scotland, ſhould give ſentence as to their ſeveral rights and titles to the crown of Scotland, &c. but as the ſaid king of England cannot put his judgement in full execution to anſwer effectually without the poſſeſſion or ſeiſin of the ſaid country and its caſtles; we will, grant, and aſſent, that he, as ſovereign lord thereof, to perform the things aforeſaid, ſhall have ſeiſin of all the lands and caſtles in Scotland, until right be done to the demandants, and to the guardians and community of the kingdom of Scotland, to reſtore both it and its caſtles, with all the royalties, dignities, franchiſes, cuſtoms, rights, laws, uſages, and poſſeſſions, with their appurtenances, in the ſame ſtate and condition they were in when he received them; ſaving to the king of England the homage of him that ſhall be king; ſo as they may be reſtored within two months after the day the rights ſhall be determined and affirmed; and that the profits of the nation which ſhall be received in the mean time ſhall be kept in the hands of the chamberlain of Scotland that now is, and one to be joined with him by the king of England; ſo as the charge of the government, caſtles, and officers of the realm, may be deducted. In witneſs whereof, &c."

For theſe reaſons, as it is ſaid, the regency put into the hands of Edward all the forts in the country. Gilbert de Umfreville alone, who had the command of the caſtles of Dundee and Forfar, refuſed to deliver them up, until he ſhould be indemnified by the ſtates, and by Edward himſelf, from all penalties of treaſon of which he might a terwards be in danger.

But though Edward had thus got into his hands the whole power of the nation, he did not think proper to determine every thing by his own authority. Inſtead of this, he appointed commiſſioners, and promiſed to grant letters-patent declaring that ſentence ſhould be paſſed in Scotland. It had been all along foreſeen that the great diſpute would be between Bruce and Baliol; and though the plea of Cummin was judged frivolous, yet he was a man of too much influence to be neglected, and he agreed tacitly to reign it in favour of Baliol. Edward accordingly made him the compliment of joining him with Baliol in nominating 40 commiſſioners. Bruce was to name 40 more; and the names of the 80 were to be given in to Edward in three days; after which the king was to add to them 24 of his own choofing. The place and time of meeting were left in their own option. They unanimouſly pitched upon Berwick for the place of meeting; but as they could not agree about the time, Edward appointed the 2d of Auguſt following. Soon after this, the regents reſigned their commiſſions to Edward; but he returned them, with powers to act in his name; and he nominated the biſhop of Caithneſs to be chancellor of Scotland; joining in the commiſſion with him Walter de Hemondeſham an Engliſhman, and one of his own ſecretaries. Still, however, he met with great difficulties. Many of his own great men, particularly the earl of Glouceſter, were by no means fond of increaſing the power of the Engliſh monarch by the acquiſition of Scotland; and therefore threw ſuch obſtacles in his way, that he was again obliged to have recourſe to negociation and intrigue, and at laſt to delay the meeting until the 2d of June in 1292: but during this interval, that he might the better reconcile the Scots to the loſs of their liberty, he propoſed an union of the two kingdoms; and for this he iſſued a writ by virtue of his ſuperiority.

The commiſſioners having met on the ſecond of June 1292, ambaſſadors for Norway preſented themſelves in the aſſembly, demanding that their maſter ſhould be admitted into the number of the claimants, as father and next heir to the late queen. This demand too was admitted by Edward, after the ambaſſadors had acknowledged his ſuperiority over Scotland: after which he propoſed that the claims of Bruce and Baliol ſhould be previouſly examined, but without prejudice to thoſe of the other competitors. This being agreed to, he ordered the commiſſioners to examine by what laws they ought to proceed in forming their report. The diſcuſſion of this queſtion was attended with ſuch difficulty, and the opinions on it were ſo various, that Edward once more adjourned the aſſembly to the 12th of October following; at which time he required the members to give their opinions on the two following points: 1. By what laws and cuſtoms they ought to proceed to judgment; and, ſuppoſing there could be no law or precedent found in the two kingdoms, in what manner? 2. Whether the kingdom of Scotland ought to be taken in the ſame view as all other fiefs, and to be awarded in the ſame manner as earldoms and baronies? The commiſſioners replied, that Edward ought to give juſtice conformable to the uſage of the two kingdoms; but that if no certain laws or precedents could be found, he might, by the advice of his great men, enact a new law. In anſwer to the ſecond queſtion they ſaid, that the ſucceſſion to the kingdom might be awarded in the ſame manner as to other eſtates and great baronies. Upon this, Edward ordered Bruce and Baliol to be called before him; and both of them urged their reſpective pleas, and anſwers, to the following purpoſe.

87 Pleas of Bruce and Baliol.

Bruce pleaded, 1. That Alexander II. deſpairing of heirs of his own body, had declared that he held him to be the true heir, and offered to prove by the teſtimony of perſons ſtill alive, that he declared this with the advice and in the preſence of the good men of his kingdom. Alexander III. alſo had declared to thoſe with whom he was intimate, that, failing iſſue of his own body, Bruce was his right heir. The people of Scotland alſo had taken an oath for maintaining the ſucceſſion of the neareſt in blood to Alexander III. who ought of right to inherit, failing Margaret the Maiden of Norway and her iſſue.—Baliol anſwered, that nothing could be concluded from the acknowledgment of Alexander II. for that he left heirs of his body; but made no anſwer to what was ſaid of the ſentiments of Alexander III. and of the oath made by the Scottiſh nation to maintain the ſucceſſion of the next of blood.

2. Bruce pleaded, that the right of reigning ought to be decided according to the natural law, by which kings reign; and not according to any law or uſage in force between ſubject and ſubject: That by the law of nature, the neareſt collateral in blood has a right to the crown; but that the conſtitutions which prevail among vaſſals, bind not the lord, much leſs the ſovereign: That although in private inheritances, which are

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3. It was urged by Bruce, that the manner of succession to the kingdom of Scotland in former times, made for his claim; for that the brother, as being nearest in degree, was wont to be preferred to the son of the deceased king. Thus, when Kenneth Macalpin died, his brother Donald was preferred to his son Constantine, and this was confirmed by several other authentic instances in the history of Scotland.—Baliol answered, that if the brother was preferred to the son of the king, the example proved against Bruce; for that the son, not the brother, was the nearest in degree. He admitted, that after the death of Malcolm III. his brother usurped the throne; but he contended, that the son of Malcolm complained to his liege lord the king of England, who dispossessed the usurper, and placed the son of Malcolm on the throne; that after the death of that son the brother of Malcolm III. again usurped the throne; but the king of England again dispossessed him, and raised Edgar, the second son of Malcolm, to the sovereignty.

4. Bruce pleaded, that there are examples in other countries, particularly in Spain and Savoy, where the son of the second daughter excluded the grandson of the eldest daughter. Baliol answered, that examples from foreign countries are of no importance; for that according to the laws of England and Scotland, where kings reign by succession in the direct line, and earls and barons succeed in like manner, the issue of the younger sister, although nearer in degree, excludes not the issue of the eldest sister, although more remote; but the succession continues in the direct line.

5. Bruce pleaded, that a female ought not to reign, as being incapable of governing: That at the death of Alexander III. the mother of Baliol was alive; and as she could not reign, the kingdom devolved upon him, as being the nearest male heir of the blood royal. But to this Baliol replied, that Bruce's argument was inconsistent with his claim: for that if a female ought not to reign, Isabella the mother of Bruce ought not, nor must Bruce himself claim through her. Besides, Bruce himself had sworn fealty to a female, the maiden of Norway.

88 Judgment given in favour of Baliol,

The arguments being thus stated on both sides, Edward demanded an answer from the council as to the merits of the competitors. He also put the following question to them: By the laws and usages of both kingdoms, does the issue of the eldest sister, though more remote in one degree, exclude the issue of the second sister, though nearer in one degree? or ought the nearer in one degree, issuing from the second sister, to exclude the more remote in one degree issuing from the eldest sister? To this it was answered unanimously, That by the laws and usages of both kingdoms, in every heritable succession, the more remote in one degree lineally descended from the eldest sister, was preferable to the nearer in degree issuing from the second sister. In consequence of this, Bruce was excluded from the succession; upon which he entered a claim for one third of the kingdom: but being baffled in this also, the kingdom of Scotland being determined an indivisible fee, Edward ordered John Baliol to have seisin of Scotland; with this caveat, however, "That this judgment should not impair his claim to the property of Scotland."

89 Who is crowned Scotland.

After so many disgraceful and humiliating concessions on the part of the Scots, John Baliol was crowned king at Scone on the 30th November 1292; and finished the ceremony by doing homage to the king of England. All his submissions, however, could not satisfy Edward, as long as the least shadow of independence remained to Scotland. A citizen of Berwick appealed from a sentence of the Scots judges appointed by Edward, in order to carry his cause into England. But this was opposed by Baliol, who pleaded a promise made by the English monarch, that he should "observe the laws and usages of Scotland, and not withdraw any causes from Scotland into his English courts."

90 Haughty behaviour of Edward.

Edward replied, that it belonged to him to hear the complaints made against his own ministers; and concluded with asserting his right, not only to try Scots causes in England, but to summon the king of Scotland, if necessary, to appear before him in person. Baliol had not spirit to resist; and therefore signed a most disgraceful instrument, by which he declared, that all the obligations which Edward had come under were already fulfilled, and therefore that he discharged them all.

Edward now thought proper to give Baliol some marks of his favour, the most remarkable of which was giving him seisin of the Isle of Man; but it soon appeared that he intended to exercise his rights of superiority in the most provoking manner. The first instance was in the case of Malcolm earl of Fife. This nobleman had two sons, Colban his heir, and another who is constantly mentioned in history by the family-name of Macduff.—It is said, that Malcolm put Macduff in possession of the lands of Reres and Crey. Malcolm died in 1266; Colban his son, in 1270; Duncan the son of Colban, in 1288. To this last earl, his son Duncan, an infant, succeeded. During the nonage of this Duncan, grand-nephew of Macduff, William bishop of St Andrew's, guardian of the earldom, dispossessed Macduff. He complained to Edward; who having ordered his cause to be tried, restored him again to possession. Matters were in this state when Baliol held his first parliament at Scone, 10th February 1292. There Macduff was cited to answer for having taken possession of the lands of Reres and Crey, which were in possession of the king since the death of the last earl of Fife. As his defences did not satisfy the court, he was condemned to imprisonment; but an action was reserved to him against Duncan, when he should come of age, and against his heirs. In all this defence, it is surprising that Macduff should have omitted his strongest argument, viz. that the regents, by Edward's authority, had put him in possession, and that Baliol had ratified all things under Edward's authority. However, as soon as he was set at liberty, he petitioned Baliol for a rehearing; but this being refused, he appealed

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91 He summons Baliol to appear before him,

to Edward, who ordered Baliol to appear before him in person on the 25th of March 1293: but as Baliol did not obey this order, he summoned him again to appear on the 14th of October. In the mean time the English parliament drew up certain *standing orders* in cases of appeal from the king of Scots; all of which were harsh and captious. One of these regulations provided, "that no excuse of absence should ever be received either from the appellant, or the king of Scotland respondent; but that the parties might have counsel if they demanded it."

92 Who behaves with resolution at his trial.

Though Baliol had not the courage to withstand the second summons of Edward, he behaved with considerable resolution at the trial. The cause of Macduff being come on, Edward asked Baliol what he had to offer in his own defence; to which he replied, "I am king of Scotland. To the complaint of Macduff, or to ought else respecting my kingdom, I dare not make answer without the advice of my people."—Edward affected surprise at this refusal, after the submissions which Baliol had already made him; but the latter steadily replied, "In matters respecting my kingdom, I neither *dare* nor *can* answer in this place, without the advice of my people." Edward then desired him to ask a farther adjournment, that he might advise with the nation. But Baliol, perceiving that his doing so would imply an acquiescence in Edward's right of requiring his personal attendance on the English courts, made answer, "That he would neither ask a longer day, nor consent to an adjournment."—It was then resolved by the parliament of England, that the king of Scotland had offered no defence; that he had made evasive and disrespectful answers: and that he was guilty of manifest contempt of the court, and of open disobedience. To make recompense to Macduff for his imprisonment, he was ordered damages from the king of Scots, to be taxed by the court; and it was also determined that Edward should inquire, according to the usages of the country, whether Macduff recovered the tenements in question by the judgment of the king's court, and whether he was dispossessed by the king of Scots. It was also resolved, that the three principal castles of Scotland, with the towns wherein they were situated, and the royal jurisdiction thereof, should be taken into the custody of the king, and there remain until the king of Scots should make satisfaction for his contempt and disobedience. But, before this judgment was publicly intimated, Baliol addressed Edward in the following words: "My lord, I am your liege-man for the kingdom of Scotland; that, whereof you have lately treated, respects my people no less than myself: I therefore pray you to delay it until I have consulted my people, lest I be surprised through want of advice: They who are now with me, neither will nor dare advise me in absence of the rest of my kingdom. After I have advised with them, I will in your first parliament after Easter report the result, and do to you what I ought."

93 His sentence.

94 Edward's remards in Scotland.

In consequence of this address, Edward, with consent of Macduff, stopped all proceedings till the day after the feast of Trinity 1294. But before this term Edward was obliged to suspend all proceedings against the Scots, by a war which broke out with France. In a parliament held this year by Edward, the king of Scotland appeared, and consented to yield up the whole revenues of his English estates for three years to assist Edward against his enemy. He was also *requested* and *ordered* by Edward to extend an embargo laid upon the English vessels all over Scotland; and this embargo to endure until the king of England's further pleasure should be known. He also requested him to send some troops for an expedition into Gascony, and required the presence and aid of several of the Scottish barons for the same purpose. The Scots, however, eluded the commands of Edward, by pretending that they could not bring any considerable force into the field; and, unable to bear his tyranny any longer, they negociated an alliance with Philip king of France. Having assembled a parliament at Scone, they prevailed upon Baliol to dismiss all the Englishmen whom he maintained at his court. They then appointed a committee of twelve, four bishops, four earls, and four barons, by whose advice every thing was to be regulated; and, if we may credit the English historians, they watched the conduct of Baliol himself, and detained him in a kind of honourable captivity. However, they could not prevent him from delivering up the castles of Berwick, Roxburgh, and Jedburgh, to the bishop of Carlisle; in whose custody they were to remain during the war between England and France, as a pledge of his allegiance. Notwithstanding this, Baliol concluded the alliance with Philip; by which it was stipulated, that the latter should give in marriage the eldest daughter of the count of Anjou to Baliol's son; and it was also provided, that Baliol should not marry again without the consent of Philip. The king of Scotland engaged to assist Philip in his wars at his own expence, and with his whole power, especially if Edward invaded France; and Philip on his part engaged to assist Scotland, in case of an English invasion, either by making a diversion, or by sending succours.

95 The Scots enter into an alliance with France.

96 The Scots invade England without success.

Puffed up with the hopes of assistance from France, the Scots invaded Cumberland with a mighty army, and laid siege to Carlisle. The men abandoned the place; but the women mounted the walls, and drove the assailants from the attack. Another incursion into Northumberland proved almost as disgraceful. Their whole exploits consisted in burning a nunnery at Lameley, and a monastery at Corebridge, though dedicated to their patron St Andrew; but having attempted to storm the castle of Harbottle, they were repulsed with loss. In the mean time Edward, with an army equal in number to that of the Scots, but much superior on account of its discipline, invaded the east coast of Scotland. Berwick had either not been delivered according to promise, or had been resumed by the Scots, and was now defended by a numerous garrison. Edward assaulted it by sea and land. The ships which began the attack were all either burnt or disabled; but Edward having led on his army in person, took the place by storm, and cruelly butchered the inhabitants, to the number of 8000, without distinction of sex or age. In this town there was a building called the *Red-hall*, which certain Flemings possessed by the tenure of defending it at all times against the king of England. Thirty of these maintained their ground for a whole day against the English army; but at night the building being set on fire, all of them perished in the flames. The same day the castle capitulated; the garrison, consisting of 2000 men, marched out with all the honours of

97 Berwick taken, and the inhabitants massacred by Edward.

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of war, after having ſworn never to bear arms againſt England.

98 Baliol's renunciation of his allegiance to England.

In the mean time, Baliol, by the advice of his parliament, ſolemnly and openly renounced his allegiance to Edward, ſending the following declaration.

"To the magnificent prince, Edward, by the grace of God, king of England; John, by the ſame grace, king of Scotland.

"Whereas you, and others of your kingdom, you not being ignorant, or having cauſe of ignorance, by your violent power, have notoriouſly and frequently done grievous and intolerable injuries, contempts, grievances, and ſtrange damages againſt us, the liberties of our kingdom, and againſt God and juſtice; citing us, at your pleaſure, upon every ſlight ſuggeſtion, out of our kingdom; unduly vexing us; ſeizing our caſtles, lands, and poſſeſſions, in your kingdom; unjuſtly, and for no fault of ours, taking the goods of our ſubjects, as well by ſea as land, and carrying them into your kingdom; killing our merchants, and others of our kingdom; carrying away our ſubjects and impriſoning them: For the reformation of which things, we ſent our meſſengers to you, which remain not only unredreſſed, but there is every day an addition of worſe things to them; for now you are come with a great army upon the borders, for the diſinheriting us, and the inhabitants of our kingdom; and, proceeding, have inhumanly committed ſlaughter, burnings, and violent invaſions, as well by ſea as land: We not being able to ſuſtain the ſaid injuries, grievances, and damages any longer, nor to remain in your fealty or homage, extorted by your violent oppreſſion, we reſtore them to you, for ourſelf, and all the inhabitants of our kingdom, as well for the lands we hold of you in your kingdom, as for your pretended government over us."

Edward was preſented with this renunciation by the hands of the intrepid Henry abbot of Aberbrothwick; and as it was favourable to his political views, he received it rather with contempt than anger. "The fooliſh traitor," ſaid he to the abbot, "ſince he will not come to us, we will go to him." The abbot had been perſuaded by his enemies, of whom he had many in Scotland, to preſent this letter, in hopes that Edward would have put him to death; but he had addreſs enough to eſcape ſafe out of his hands, without receiving any other anſwer.

Though this ſcheme of renunciation had been concerted ſome time before, the declaration was not ſent to Edward till after the taking of Berwick. The fate of Scotland, however, after it, was ſoon decided. The Earl of March had taken part with Edward, but the counteſs betrayed his caſtle of Dunbar into the hands of the Scots. Edward ſent a choſen body of troops to recover the place. The whole force of Scotland oppoſed them on the heights above Dunbar; but leaving their advantageous poſt, and pouring down on their enemies in confuſion, they were diſperſed and defeated.

99 The Scots defeated at Dunbar.

The caſtle of Dunbar ſurrendered at diſcretion; that of Roxburgh followed the ſame example; the caſtle of Edinburgh ſurrendered after a ſhort ſiege; and Stirling was abandoned. The Scots, in the mean time, were guilty of the greateſt extravagances. During the ſhort interval between the loſs of Berwick and the defeat at Dunbar, an order was made for expelling all the Engliſh eccleſiaſtics who held benefices in England; all the partizans of England, and all neutrals, were declared traitors, and their eſtates confiſcated. But the great ſucceſſes of Edward ſoon put an end to theſe impotent acts of fury. Baliol was obliged to implore the mercy of the conqueror. Diveſted of his royal ornaments, and bearing a white rod in his hand, he performed a moſt humiliating penance; confeſſing, that by evil and falſe counſel, and through his own ſimplicity, he had grievouſly offended his liege lord. He recapitulated his various tranſgreſſions, in concluding an alliance with France while at enmity with England; in contracting his ſon with the niece of the French king; in renouncing his fealty; in attacking the Engliſh territories, and in reſiſting Edward. He acknowledged the juſtice of the Engliſh invaſion and conqueſt; and therefore he, of his own free conſent, reſigned Scotland, its people, and their homage, to his liege-lord Edward, 2d July 1296.

100 Baliol ſubmits, and goes penance.

The king of England purſued his conqueſts, the barons everywhere crowding in to ſwear fealty to him, and renounce their allegiance with France. His journey ended at Elgin, from whence he returned ſouthward; and, as an evidence of his having made an abſolute conqueſt of Scotland, he carried off from Scone the wooden chair in which the kings were wont to be crowned. This chair had for its bottom the fatal ſtone regarded as the national palladium (D). Some of the charters

101 Scotland ſubdued.

(D) "This ſtone is thus deſcribed by W. Hemingford, T. i. p. 37. "Apud monaſterium de Scone poſitus erat lapis pergrandis in eccleſia Dei, juxta magnum altare, concavus quidem *ad modum rotundæ cathedræ conjectus*, in quo futuri reges loco quaſi coronationis ponebantur ex more. Rege itaque novo in lapide poſito, miſſarum ſolemnia incepta peraguntur, et præterquam in elevatione ſacri dominici corporis, ſemper lapidatus, manſit." And again, T. i. p. 100. "In redeundo per Scone, præcepit tolli et Londoniis cariari, *lapidem* illum, in quo, ut ſupra dictum eſt, Reges Scotorum ſolebant poni loco coronationis ſuæ, *et hoc in ſignum regni conqueſti et reſignati.*" Walſingham mentions the uſe to which Edward put this ſtone: "Ad Weſtmonaſterium tranſtulit illum, jubens inde fieri celebrantium cathedram ſacerdotum." This account of *the fatal ſtone* is here tranſcribed, that it may be compared with the appearance of the ſtone that now bears its name at Weſtminſter.

Fordun has preſerved the ancient rhymes conerning it; L. xi. c. 25.

"Hic rex ſic totam Scotiam fecit ſibi notam,
Qui ſine menſura tulit inde jocalia plura,
Et pariter lapidem, Scotorum quem fore ſedem
Regum decrevit fatum; quod ſic inolevit,
Ni fallat fatum, Scoti quocunque locatum
Invenient lapidem, regnare tenentur ibidem."

This

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charters belonging to the abbey were carried off, and the ſeals torn from others: "which," ſays Lord Hailes, "is the only well-vouched example which I have found of any outrage on private property committed by Edward's army. It is mentioned in a charter of Robert I. and we may be aſſured that the outrage was not diminiſhed in the relation."

On the 28th of Auguſt 1296, Edward held a parliament at Berwick, where he received the fealty of the clergy and laity of Scotland. It is ſaid, that while the Engliſh monarch was employed in the conqueſt of Scotland, he had promiſed the ſovereignty to Robert Bruce, lord of Annandale, in order to ſecure his fidelity; but being put in mind of his promiſe, he anſwered, "Have I no other buſineſs but to conquer kingdoms for you?" Bruce ſilently retired, and paſſed his days in obſcurity. Among thoſe who profeſſed their allegiance at this parliament was Robert Bruce the younger, earl of Carrick. After this, Edward took the moſt effectual methods of ſecuring his new conqueſt. He ordered the eſtates of the clergy to be reſtored; and having received the fealty of the widows of many of the Scottiſh barons, he put them in poſſeſſion of their jointure-lands, and even made a decent proviſion for the wives of many of his priſoners. Yet, though in every thing he behaved with great moderation towards the Scots, he committed the government of certain diſtricts, and of the chief caſtles in the ſouth of Scotland, to his Engliſh ſubjects, of whoſe fidelity and vigilance he thought himſelf aſſured. In order to conciliate the affections of the clergy, he granted to the Scottiſh biſhops, for ever, the privilege of bequeathing their effects by will, in the ſame manner as that privilege was enjoyed by the archbiſhops and biſhops of England. In honour of the "glorious Confeſſor St Cuthbert," he gave to the monks of Durham an annual penſion of 40 pounds, payable out of the revenues of Scotland, by the tenure of maintaining, before the ſhrine of the ſaint, two wax-tapers of 20 pounds weight each, and of diſtributing twice a-year one penny each to 3000 indigent perſons. At laſt, having ſettled every thing, as he thought, in tranquillity, he departed for England, with all the pride of a conqueror.

102 New diſturbances

The tranquillity eſtabliſhed by Edward, however, was of ſhort duration. The government of Scotland at that time required many qualities which Edward's vicegerents had not. Warenne, earl of Surry, who had been appointed governor, took up his abode in England, on pretence of recovering his health. Creſſingham, the treaſurer, was a voluptuous, proud, and ſelfiſh eccleſiaſtic; while Ormeſby the juſticiary was hated for his ſeverity. Under theſe officers the adminiſtration of Edward became more and more feeble; bands of robbers infeſted the highways, and the Engliſh government was univerſally deſpiſed. At this critical moment aroſe Sir William Wallace, the hero ſo much celebrated in Scottiſh fables, and by which indeed his real exploits are ſo much obſcured, that it is difficult to give an authentic relation of them. The moſt probable account is, that he was the younger ſon of a gentleman (Wallace of Ellerſlie) in the neighbourhood of Paiſley. Having been outlawed for ſome offence (generally ſuppoſed to have been the killing of an Engliſhman), he aſſociated with a few companions, of fortunes equally deſperate with his own. Wallace himſelf was endowed with great ſtrength and courage, and an active and ambitious ſpirit; and by his affability, eloquence, and wiſdom, he maintained an authority over the rude and undiſciplined multitudes who flocked to his ſtandard. In May 1297, he began to infeſt the Engliſh quarters; and being ſucceſsful in his predatory incurſions, his party became more numerous, and he was joined by Sir William Douglas. With their united forces, theſe two allies attempted to ſurpriſe Ormeſby the juſticiary, while he held his courts at Scone; but he ſaved himſelf by a precipitate flight. After this the Scots roved over the whole country, aſſaulted caſtles, and maſſacred the Engliſh. Their party was joined by many perſons of rank; among whom were Robert Wiſheart biſhop of Glaſgow, the Steward of Scotland and his brother Alexander de Lindſay, Sir Richard Lundin, and Sir Andrew Moray of Bothwell. Young Bruce would have been a vaſt acceſſion to the party; for he poſſeſſed all Carrick and Annandale, ſo that his territories reached from the frith of Clyde to Solway. But the wardens of the weſtern marches of England ſuſpected his fidelity, and ſummoned him to Carliſle. He obeyed, and made oath on the conſecrated hoſt, and on the ſword of Becket, to be faithful and vigilant in the cauſe of Edward; and to prove his ſincerity, he invaded with fire and ſword the eſtate of Sir William Douglas, and carried off his wife and children. However, he inſtantly repented of what he had done: "I truſt (ſaid he), that the pope will abſolve me from an extorted oath;" on which he abandoned Edward, and joined the Scottiſh army.

103 Sir William Wallace.

All this time Edward was in France, not in the leaſt ſuſpecting an inſurrection among people whom he imagined he had thoroughly ſubdued. As ſoon as he received the intelligence, he ordered the earl of Surry to ſuppreſs the rebels; but he declining the command of the army himſelf on account of his health, reſigned it to his nephew, Lord Henry Percy. A great army, ſome ſay no fewer than 40,000 men, was now aſſembled, with which Percy marched againſt the Scots. He found them encamped at Irwin, with a lake in their front, and their flanks ſecured by entrenchments, ſo that they could not be attacked without the utmoſt danger. The Scots, however, ruined every thing by their diſſenſions. Wallace was envied on account of his accompliſhments, which had raiſed his reputation above the other officers, whoſe birth and circumſtances were higher than his. His companions accordingly became jealous, and began to ſuggeſt, that an oppoſition to the Engliſh could only be productive of farther national deſtruction. Sir Richard Lundin, an officer of great rank, formed a party againſt Wallace, and went over to Edward with all his followers. He attempted to juſtify his

104 Diſſenſions of the Scots.

This was the ſtone which Gathelus ſent from Spain with his ſon when he invaded Ireland, which King Edward won in Ireland, brought over with him, and placed at Scone. As the moſt proper [illegible] for a [illegible] of this nature, ſee *Acts of Sir William Wallace, by Blind Harry*. B. i. c. 4.

his treachery, by saying, "I will remain no longer of a party that is at variance with itself;" without considering that he himself, and his party, were partly the occasion of that variance. Other leaders entered into a negociation with the English. Bruce, the Steward and his brother Alexander de Lindesay, and Sir William Douglas, acknowledged their offences, and made submissions to Edward for themselves and their adherents.

105 Most of them submit to the English.

This scandalous treaty seems to have been negociated by the bishop of Glasgow, and their recantation is recorded in the following words.—"Be it known to all men: Whereas we, with the commons of our country, did rise in arms against our lord Edward, and against his peace, in his territories of Scotland and Galloway, did burn, slay, and commit divers robberies; we therefore, in our own name, and in the name of all our adherents, agree to make every reparation and atonement that shall be required by our sovereign lord; reserving always what is contained in a writing which we have procured from Sir Henry Percy and Sir Robert Clifford, commanders of the English forces; at Irvine, 9th July 1297." To this instrument was subjoined, "Escrit a Sire Willaume;" the meaning of which lord Hailes supposes to be, that the barons had notified to Sir William Wallace their having made terms of accommodation for themselves and their party.

Edward accepted the submission of the Scottish barons who had been in arms, and granted liberty to those whom he had made prisoners in the course of the former year, on condition that they should serve him in his wars against France. The inconstancy of Bruce, however, was so great, that acknowledgments of submission or oaths of fealty were not thought sufficiently binding on him; for which reason the bishop of Glasgow, the Steward, and Alexander de Lindesay, became sureties for his loyalty and good behaviour, until he should deliver his daughter Marjory as an hostage.

106 Wallace still holds out.

Wallace alone refused to be concerned in these shameful submissions; and, with a few resolute followers, resolved to submit to every calamity rather than give up the liberty of his country. The barons had undertaken to procure his submission as well as their own; but finding that to be impossible, the bishop of Glasgow and Sir William Douglas voluntarily surrendered themselves prisoners to the English. Edward, however, ascribed this voluntary surrender, not to any honourable motive, but to treachery. He asserted, that Wisheart repaired to the castle of Roxburgh under pretence of yielding himself up, but with the concealed purpose of forming a conspiracy in order to betray that castle to the Scots; and in proof of this, Edward appealed to intercepted letters of Wisheart. On the other hand, Wallace, ascribing the bishop's conduct to traiterous pusillanimity, plundered his house, and carried off his family captives.

Immediately after the defection of the barons at Irvine, Wallace with his band of determined followers attacked the rear of the English army, and plundered their baggage; but was obliged to retire, with the loss of 1000 men. He then found himself deserted by almost all the men of eminence and property. His army, however, increased considerably by the accession of numbers of inferior rank, and he again began to act on the offensive. While he employed himself in besieging the castle of Dundee, he was informed that the English army approached Stirling. Wallace, having charged the citizens of Dundee, under the pain of death, to continue the blockade of the castle, hastened with all his troops to guard the important passage of the Forth; and encamped behind a rising ground in the neighbourhood of the abbey of Cambuskenneth. Brian Fitz-Allan had been appointed governor of Scotland by Edward; but Warenne, who waited the arrival of his successor, remained with the army. Imagining that Wallace might be induced by fair means to lay down his arms, he dispatched two friars to the Scottish camp, with terms of capitulation. "Return," said Wallace, "and tell your masters, that we came not here to treat but to assert our right, and to set Scotland free. Let them advance, they will find us prepared." The English, provoked at this answer, demanded impatiently to be led on to battle. Sir Richard Lundin remonstrated against the absurdity of making a numerous army pass by a long narrow bridge in presence of the enemy. He told them, that the Scots would attack them before they could form on the plain to the north of the bridge, and thus certainly defeat them: at the same time he offered to show them a ford, which having crossed with 500 horse, and a chosen detachment of infantry, he proposed to come round upon the rear of the enemy, and by this diversion facilitate the operations of the main body. But this proposal being rejected, the English army began to pass over; which was no sooner perceived by Wallace, than he rushed down upon them, and broke them in a moment. Cressingham the treasurer was killed, and many thousands were slain on the field, or drowned in their flight. The loss of the Scots would have been inconsiderable, had it not been for that of Sir Andrew Moray, the intimate friend and companion of Wallace, who was mortally wounded in the engagement. The Scots are said to have treated the dead body of Cressingham with the utmost indignity; to have flead him, and cut his skin into pieces, which they divided among themselves; while others tell us, they used it for making girths, and saddles.

107 Gives the English a great defeat near Stirling.

The victory at Stirling was followed by the surrender of Dundee castle, and other places of strength in Scotland; at the same time the Scots took possession of Berwick, which the English had evacuated. But as a famine now took place in Scotland by the bad seasons and miseries of war, Wallace marched with his whole army into England, that he might in some measure relieve the necessities of his countrymen by plundering the enemy. This expedition lasted three weeks, during which time the whole tract of country from Cockermouth and Carlisle to the gates of Newcastle was laid waste with all the fury of revenge and rapacity; though Wallace endeavoured, as far as possible, to repress the licentiousness of his soldiers.

In 1298, Wallace assumed the title of "Governor of Scotland, in name of king John, and by consent of the Scottish nation;" but in what manner this office was obtained, is now in a great measure unknown. In a parliament which he convoked at Perth, he was confirmed in his authority; and under this title he conferred the constabulary of Dundee on Alexander surnamed *Skrimgeour* and his heirs, on account of his faithful aid in bearing the royal standard of Scotland. This grant

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grant is said to have been made with the consent and approbation of the Scottish nobility, 29th March 1298. From this period, however, we may date the very great jealousy which took place between Wallace and the nobles who pretended to be of his party. His elevation wounded their pride; his great services reproached their inactivity in the public cause; and thus the counsels of Scotland were perplexed with distrust and envy, when almost its very existence depended on unanimity.

In June 1298, Edward, who had all this time been in Flanders, returned to England, and summoned the Scottish barons, under pain of rebellion, to attend him in parliament; and, on their disobeying his summons, he advanced with his army towards Scotland. His main force, commanded by himself, assembled at Berwick; but a body of troops, under the earl of Pembroke, having landed in the north of Fife, were defeated with great loss by Wallace, on the 12th of June. The same month Edward invaded Scotland by the way of the eastern borders. No place resisted him except the castle of Dirleton. After a resolute defence, it surrendered to Anthony Beck, bishop of Durham.

Meanwhile the Scots were assembling all their strength in the interior part of the country. Few barons of eminence repaired to the national standard. They whose names are recorded, were John Comyn of Badenoch, the younger; Sir John Stewart of Bonkill, brother to *The Steward*; Sir John Graham of Abercorn; and Macduff, the grand-uncle of the young earl of Fife.—Robert Bruce again acceded to the Scottish party; and with his followers guarded the important castle of Air, which kept the communication open with Galloway, Argyleshire, and the isles.

The aim of Edward was to penetrate into the west, and there to terminate the war. He appointed a fleet, with provisions, to proceed to the frith of Clyde, and await his arrival in those parts. This precaution was absolutely necessary for the subsistence of his numerous army in a country impoverished and waste.

Waiting for accounts of the arrival of his fleet, he established his head-quarters at Templeliston, between Edinburgh and Linlithgow.

A dangerous insurrection arose in his camp. He had bestowed a donative of wine among his soldiers; they became intoxicated; a national quarrel ensued.—In this tumult the Welsh slew 18 English ecclesiastics. The English horsemen rode in among the Welsh, and revenged this outrage with great slaughter. The Welsh in disgust separated themselves from the army. It was reported to Edward, that they had mutinied, and gone over to the Scots: "I care not," said Edward, dissembling the danger; "let my enemies go and join my enemies; I trust that in one day I shall chastise them all."

Edward was now placed in most critical circumstances. As the fleet with provisions had been detained by contrary winds, he could not venture to advance, neither could he subsist any longer in his present quarters. To retreat would have sullied the glory of his arms, and exposed him to the obloquy and murmurs of a discontented people. Yet he submitted to this hard necessity. Abandoning every prospect of ambition and revenge, he commanded his army to return to the eastern borders. At that moment intelligence arrived that the Scots were advanced to Falkirk.

Edward instantly marched against them. His army lay that night in the fields. While Edward slept on the ground, his war-horse struck him and broke two of his ribs. The alarm arose, that the king was wounded. They who knew not the cause repeated the cry. "The king is wounded; there is treason in the camp; the enemy is upon us." Edward mounted on horseback, and by his presence dispelled the panic. With a fortitude of spirit superior to pain, he led on his troops. At break of day, the Scottish army was descried, forming on a stony field at the side of a small eminence in the neighbourhood of Falkirk.

110 The battle of Falkirk.

Wallace ranged his infantry in four bodies of a circular form. The archers, commanded by Sir John Stewart, were placed in the intervals. The horse, amounting to no more than a thousand, were at some distance in the rear. On the front of the Scots lay a morass. Having drawn up his troops in this order, Wallace pleasantly said, "Now I have brought you to the ring, dance according to your skill."

Edward placed his chief confidence in the numerous and formidable body of horsemen whom he had selected for the Scottish expedition. These he ranged in three lines. The first was led by Bigot Earl Marshal, and the Earls of Hereford and Lincoln; the second by the bishop of Durham, having under him Sir Ralph Basset of Drayton; the third, intended for a reserve, was led by the king himself. No mention is made of the disposition of his infantry: it is probable that they were drawn up behind, to support the cavalry, and to annoy the Scots with their arrows and other missile weapons.

Bigot, at the head of the first line, rushed on to the charge. He was checked by the morass, which in his impetuosity he had overlooked. This obliged him to incline to the solid ground on his left, towards the right flank of the Scottish army. The bishop of Durham, who led the second line, inclined to the right, turned the morass, and advanced towards the left flank of the Scottish army. He proposed to halt till the reserve should advance. "To mass, bishop," cried Basset, and instantly charged. The shock of the English cavalry on each side was violent, and gallantly withstood by the Scottish infantry; but the Scottish cavalry, dismayed at the number and force of the English men-at-arms, immediately quitted the field. Stewart, while giving orders to his archers, was thrown from his horse and slain. His archers crowded round his body and perished with him. Often did the English strive to force the Scottish circle. "They could not penetrate into that wood of spears," as one of their historians speaks. By repeated charges, the outermost ranks were brought to the ground. The English infantry incessantly galled the Scots with showers of stones and arrows. Macduff and Sir John Graham fell. At length the Scots were broken by the numbers and weight of the English cavalry, and the rout became universal.

111 The Scots defeated with great slaughter.

The number of the Scots slain in this battle must have been very great. As is commonly the case, it is exaggerated by the historians of the victors, and reduced too low by the historians of the vanquished.

On the side of the English the loss was inconsiderable. The only persons of note who fell were Brian le Jay, master of the English Templars, and the prior of Tor-

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phichen in Scotland, a knight of another order of religious soldiery (E).

The Scots in their retreat burnt the town and castle of Stirling. Edward repaired the castle, and made it a place of arms. He then marched to the west. At his approach, Bruce burnt the castle of Ayr, and retired. Edward would have pursued him into Carrick; but the want of provisions stopped his further progress. He turned into Annandale, took Bruce's castle of Lochmaben, and then departed out of Scotland by the western borders.

Here may be remarked the fatal precipitancy of the Scots. If they had studied to protract the campaign, instead of hazarding a general action at Falkirk, they would have foiled the whole power of Edward, and reduced him to the necessity of an inglorious retreat.

112 Abject condition of John Baliol.

In 1299 Edward thought proper to release John Baliol the unfortunate king of Scotland, whom he had kept close prisoner ever since the year 1296. Before this time Baliol had used the most disgraceful methods to recover his liberty. He had solemnly declared, that "he would never have any intercourse with the Scots; that he had found them a false and treacherous people; and that he had reason to suspect them of an intention to poison him." However, notwithstanding all his protestations, Edward still detained him in captivity; but at last released him at the mediation of the pope, though after a singular form: He ordered the governor of Dover to convey him to the French coast, and there to deliver him to the papal nuncio, "with full power to the pope to dispose of Baliol and his English estate." In consequence of which he was conveyed to Witsand, delivered to the nuncio in presence of a notary and witnesses, and a receipt taken for his person. Notwithstanding this abject state, however, the Scots continued to own him for their king, and to assert their national independency. Tho' the misfortune at Falkirk had deprived them of a very considerable extent of territory, they were still in possession of the whole country beyond the Forth, as well as the county of Galloway. By general consent William Lamberton bishop of St Andrew's, Robert Bruce earl of Carrick, and John Cummin the younger, were chosen guardians of Scotland in name of Baliol. Wallace at this time was reduced to the condition of a private man; nor had he any longer the command of the Scots armies, nor any share in their councils.—The new guardians undertook to reduce the castle of Stirling, and Edward prepared to defend it. The Scots posted themselves at the Torwood, and chose their ground judiciously, so that Edward could scarce have raised the siege without dislodging them; which finding it impossible for him to do, he returned home in disgust. Next year he invaded Scotland on the west side, wasted Annandale, and reduced Galloway; but the Scots being now taught by experience to avoid a general action, chose their posts with such skill, that Edward

113 Edward obliged to retire.

(E) "This account of the action at Falkirk, extracted from Lord Hailes's *Annals*, is drawn, his Lordship informs us, from the testimony of the English historians. "They have done justice (he observes) to the courage and steadiness of their enemies; while our historians represented their own countrymen as occupied in frivolous unmeaning contests, and, from treachery or resentment, abandoning the public cause in the day of trial.

"It would be tedious and unprofitable to recite all that has been said on this subject by our own writers from Fordun to Abercrombie. How Wallace, Stewart, and Comyn, quarrelled on the punctilio of leading the van of an army which stood on the defensive: How Stewart compared Wallace to 'an owl with borrowed feathers,': How the Scottish commanders, busied in this frivolous altercation, had no leisure to form their army: How Comyn traiterously withdrew with 10,000 men: How Wallace, from resentment, followed his example: How by such disastrous incidents, the Scottish army was enfeebled, and Stewart and his party abandoned to destruction. Our histories abound in trash of this kind: There is scarcely one of our writers who has not produced an invective against Comyn, or an apology for Wallace, or a lamentation over the deserted Stewart. What dissensions may have prevailed among the Scottish commanders, it is impossible to know. It appears not to me that their dissensions had any influence on their conduct in the day of battle. The truth seems to be this: The English cavalry greatly exceeded the Scottish in numbers, were infinitely better equipped and more adroit: the Scottish cavalry were intimidated, and fled. Had they remained on the field, they might have preserved their honour; but they never could have turned the chance of that day. It was natural, however, for such of the infantry as survived the engagement, to impute their disaster to the defection of the cavalry. National pride would ascribe their flight to treachery rather than to pusillanimity. It is not improbable that Comyn commanded the cavalry: hence a report may have been spread, that Comyn betrayed his country; this report has been embellished by each successive relator. When men are seized with a panic, their commander *must* from necessity, or *will* from prudence, accompany them in their flight. Earl Warrenne fled with his army from Stirling to Berwick; yet Edward I. did not punish him as a traitor or a coward.

"The tale of Comyn's treachery, and Wallace's ill-timed resentment, may have gained credit, because it is a pretty tale, and not improbable in itself: but it amazes me that the story of the *congress* of Bruce and Wallace after the battle of Falkirk should have gained credit. I lay aside the full evidence which we now possess, 'that Bruce was not, at that time, of the English party, nor present at the battle.' For it must be admitted, that our historians knew nothing of those circumstances which demonstrate the impossibility of the *congress*. But the wonder is, that men of sound judgment should not have seen the absurdity of a long conversation between the commander of a flying army, and one of the leaders of a victorious army. When Fordun told the story, he placed a 'narrow but inaccessible glen' between the speakers. Later historians have substituted the river Carron in the place of the inaccessible glen, and they make Bruce and Wallace talk across the river like two young declaimers from the pulpits in a school of rhetoric."

otland. ward could not penetrate farther; and the same year a truce was concluded with the Scots, to continue till Whitsunday 1301.

114 e crown Scotland imed by pe Boni- e VIII.

This year a new competitor appeared for the crown of Scotland. Boniface VIII. in a bull directed to Edward, averred, that Scotland belonged anciently, and did still belong, to the holy see; and supported his extravagant claim by some strange authorities; such as, that Scotland had been miraculously converted by the relics of St Andrew: after which he proceeded to show the futility of Edward's pretensions, and that Scotland never had any feudal dependence on England. He required Edward to set at liberty all the Scottish ecclesiastics, particularly Wisheart bishop of Glasgow, and to remove his officers from the patrimony of the church: "But (added he) should you have any pretensions to the whole, or any part of Scotland, send your proctors to me within six months; I will hear and determine according to justice; I take the cause under my own peculiar cognizance."

115 s preten- ns an- ered by ward l his par- ment.

This interposition of the pope had probably been procured by Scottish emissaries at the court of Rome; but, however ridiculous his pretensions might be, they afforded matter of very serious consideration to Edward. After spending a whole winter in deliberations, Edward and his parliament made separate answers to the pope. The answer of the parliament was to the following purpose: All England knows, that ever since the first establishment of this kingdom, our kings have been liegelords of Scotland. At no time has the kingdom of Scotland belonged to the church. In temporals, the kings of England are not amenable to the see of Rome. We have with one voice resolved, that, as to temporals, the king of England is independent of Rome; that he shall not suffer his independency to be questioned; and therefore, that he shall not send commissioners to Rome. Such is, and such, we trust in God, ever will be, our opinion. We do not, we cannot, we must not, permit our king to follow measures subversive of that government which we have sworn to maintain, and which we will maintain."

116 short ce con- ded with otland.

The king entered into a more full refutation of the pope's arguments; and having, as he thought, answered them sufficiently, he marched again into Scotland: but, by the mediation of France, another truce was concluded, to last till St Andrew's day 1302.

117 ree bo- s of the glish de- ted in day.

After the expiration of the truce, Edward sent an army into Scotland, under the command of John de Segrave. This general divided his troops into three bodies; but, keeping them so far distant that they could not support each other, they were all engaged and defeated in one day by the Scots, near Roslin (see Roslin). This, however, was the last successful exploit of the Scots at this period. The pope deserted them; and the king of France concluded a peace with England, in which all mention of the Scots was industriously avoided; so that they were left alone to bear the whole weight of Edward's resentment, who now invaded their country in person with a mighty army. He met with no resistance in his progress, except from the castle of Brechin, which was commanded by Thomas Maul, a brave and experienced officer. He held out for 20 days against the whole power of the English army; but at last, being mortally wounded, the place capitulated.

118 tland in- led by ward person h a vast y.

From thence he proceeded northward, according to some historians, as far as Caithness. He then returned towards the south, and wintered in Dunfermline. In that place there was an abbey of the Benedictine order; a building so spacious, that, according to an English historian, three sovereign princes with all their retinue might have been lodged conveniently within its precincts. Here the Scottish nobles sometimes held their assemblies. The English soldiers utterly demolished this magnificent fabric.

The only fortress that remained in the possession of the Scots was the castle of Stirling, where Sir William Oliphant commanded. To protect this single place of refuge, Comyn assembled all his forces. He posted his army on the south bank of the river, in the neighbourhood of Stirling, there to make the last stand for the national liberty. The Scots fondly imagined, that Edward would attempt to force the passage, as the impetuous Cressingham had attempted in circumstances not dissimilar. But the prudence of Edward frustrated their expectations. Having discovered a ford at some distance, he crossed the river at the head of his whole cavalry. The Scots gave way, and dispersed themselves.

119 The Scots army routed.

All resources but their own courage had long failed them; that last resource failed them now, and they hastened to conciliate the favour of the conqueror. Previous to this, Bruce had surrendered himself to John de St John, the English warden. Comyn and his followers now submitted to Edward. They stipulated for their lives, liberties, and estates: reserving always to Edward the power of inflicting pecuniary mulcts on them as he should see fit.

120 Capitulation with Edward.

From the general conditions of this capitulation, the following persons were excepted: Wisheart bishop of Glasgow, the Steward, Sir John Soulis, David de Graham, Alexander de Lindesay, Simon Fraser, Thomas Bois, and Wallace. With respect to them, it was provided, that the bishop of Glasgow, the Steward, and Soulis, should remain in exile for two years, and should not pass to the north of Trent; that Graham and Lindesay should be banished from Scotland for six months; that Fraser and Bois should be banished for three years from all the dominions of Edward, and should not be permitted, during that space, to repair to the territories of France. "As for William Wallace, it is agreed, that he shall render himself up at the will and mercy of our sovereign lord the king, if it shall seem good to him." These were all the conditions that the Scottish nation stipulated for the man who had vanquished the English at Stirling, who had expelled them from Scotland, and who had once set his country free!

Amid this wreck of the national liberties, Wallace scorned submission. He lived a free man: a free man he resolved to die. Fraser, who had too oft complied with the times, now caught the same heroic sentiments. But their endeavours to rouse their countrymen were in vain. The season of resistance was past. Wallace perceived that there remained no more hope; and sought out a place of concealment, where, eluding the vengeance of Edward, he might silently lament over his fallen country.

Edward assembled at St Andrew's what is called a parliament

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parliament. Wallace, Fraser, and the garrison of Stirling, were summoned to appear: They appeared not, and sentence of outlawry was pronounced against them.

121 The castle of Stirling reduced, and Scotland subdued.

Edward now prepared to besiege the castle of Stirling; and, foreseeing that the reduction of this place would be attended with considerable difficulty, he stripped the abbey of St Andrew's of the lead which covered it, in order to employ the metal in bullets for his battering machines. Oliphant was solemnly summoned to surrender; but in vain. Edward drew out all his artillery, and battered the walls with stones of 200 pounds weight. The besieged, however, defended themselves with obstinacy, and killed a great number of the English: but at last they were obliged to surrender: and Edward, looking upon the conquest of Scotland as now complete, set out for York, and from thence to Lincoln.

122 Edward attempts an union between the two kingdoms in vain.

Though Edward had thus met with all the success he could desire in his expeditions against the Scots, he could not but perceive that his dominion over them must be very precarious, as long as he held them in the subjection of a conquered people. He resolved therefore once more to renew his attempts for an union of the two kingdoms. He began with taking into favour the bishop of Glasgow, Robert Bruce, and John Mowbray, who, next to Bruce and the Cummings, was amongst the greatest of the Scottish nobility. To them he recommended the settling the affairs of their country, but in such a manner as to leave it in his power to effect the proposed union with England. This scheme, however, was by no means agreeable to Bruce; who had now no other competitor for the crown but Cumming, who was in a great measure incapable of opposing his designs: neither indeed could it ever be made agreeable to the bulk of the nation; and therefore came to nothing at last. Scotland, however, was subdued. Its inhabitants had renounced every idea of asserting their liberty, and only strove to make their court to the conqueror. Wallace alone remained an exception. Edward, who had received into favour those who had proved traitors over and over again, showed a mean revenge against the only man who discovered a steady and honourable spirit, and whose friendship seemed worth the courting. Ralph de Haliburton, a prisoner, offered his assistance for discovering Wallace; and for this purpose he was granted a temporary liberty: but what he did in this very dishonourable employment is unknown. Certain it is that Wallace was discovered, and betrayed into the hands of the English, by Sir John Menteith, as is commonly supposed; who is also said to have been the intimate friend of Wallace, though without any just foundation. Be this as it will, however, this celebrated and heroic patriot was arraigned at Westminster as a traitor to Edward, and as having burnt villages, stormed castles, and slaughtered many subjects of England. Wallace denied his ever having been a traitor, and indeed with truth; for he had always been the avowed enemy of Edward, and had not at any time owned allegiance to him. But whatever his defences might have been, they were of no avail with a judge who had resolved on his destruction. Wallace was condemned to die a traitor's death, and the sentence was executed with the utmost rigour! In his last moments he asserted that independency which a degenerate nation had renounced. His head was placed on a pinacle at London, and his mangled limbs were distributed over the kingdom.

123 Wallace betrayed, and executed.

124 Edward's precautions for settling the Scots affairs.

After the death of Wallace, Edward thought of nothing but settling the affairs of Scotland as a conquered country; however, he took care to preserve the ancient forms as far as was consistent with the dependent state of the nation. It has been said, indeed, that Edward abrogated all the Scottish laws and customs, and endeavoured to substitute the English in their stead; but this is denied by others. Lord Hailes gives us at length the record with respect to these laws, in the following words. "And, with respect to the laws and usages of the government of Scotland, it is ordained, that the *custom of the Scots and the Brets* shall for the future be prohibited, and be no longer practised. It is also ordained, that the king's lieutenant shall forthwith assemble the good people of Scotland: and that, at such assembly, shall be read over the statutes made by David king of Scots, and also the additions and amendments which have been made by other kings; and that the lieutenant, with the assistance which he shall then have, as well of Englishmen as of Scots, shall amend such of these statutes and usages as are plainly against the laws of God and reason, as they best may in so short a space, and in so far as they can without consulting the king; and as to matters which they cannot undertake to correct of themselves, that they be put in writing, and laid before the king by the lieutenant, and any number of commissioners, with parliamentary powers, whom the Scots shall think fit to choose. That they shall meet with commissioners appointed by the king, and finally determine as to the premisses."

125 Did not abrogate the ancient laws.

This is the record by which it is generally supposed that the law of Scotland was abrogated. But Lord Hailes is of opinion, that *the usage of the Scots and Brets* here mentioned was something different from the common law of the land. "We know (says he), from our statute-book, that the people of Galloway had certain usages peculiar to themselves; *Stat. Alex.* II. c. 2. One was, that causes were tried among them without juries [*Quon. Attach.* c. 72. 73. placed in some ancient MSS. among LL. David I. c. 15.], and this may probably have been the usage which Edward abolished. The people of Galloway were sometimes distinguished by the name of *Scots:* thus the *wild Scot of Galloway* is an expression to be found in ancient instruments, and is proverbial even in our own days. *The usage of the Brets,* I take to be what relates to the judge called *brithibh,* or *brehon;* in Ireland, *brehan;* and consequently, that the thing here abolished was the commutation of punishments by exacting a pecuniary mulct."

126 Indemnity granted to the Scots.

An indemnity was now granted to the Scots upon certain conditions. Various fines were imposed, from one to five years rent of the estates of the delinquents. One year's rent was to be paid by the clergy, excluding the bishop of Glasgow; two by those who were more early in their submissions than Comyn; three by Comyn and his associates, and by the bishop of Glasgow; four years rent was to be paid by William de Baliol and John Wisheart; and five by Ingelram de Umfraville, because they had stood out longer. Three years rent was also paid by the vassals of Baliol, Wisheart, and Umfraville. These fines were to be paid in moieties. The person taxed was to pay half his income annually: and thus Umfraville, taxed in five years rent, was allowed

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lowed ten years to discharge the fine. This was an express reservation to Edward of all the royal demesnes which Baliol might have alienated. There was also an exception for those who were already in custody, and those who had not yet submitted.

127 Overthrow of the English government.

Thus, after a long and obstinate contest, was Scotland wholly reduced under the dominion of Edward. —Within *four months* that system was overthrown, which the incessant labour of *fifteen years* had established by craft, dissimulation, and violence, with a waste of treasure, and the effusion of much blood. The causes of this event are related as follows. Dervergguill of Galloway had a son, John Baliol, and a daughter named Marjory. John Comyn was the son of Marjory, and, setting Baliol aside, was heir to the pretensions of Dervergguill. He had for many years maintained the contest against Edward; but at last laid down his arms, and swore fealty to the conqueror; and as Baliol had repeatedly renounced all pretensions to the crown of Scotland, Comyn might now be considered as the rightful heir. His rival in power and pretensions was Bruce earl of Carrick. This young nobleman's grandfather, *the competitor*, had patiently acquiesced in the award of Edward. His father, yielding to the times, had served under the English banners. But young Bruce had more ambition, and a more restless spirit. In his earlier years he acted upon no regular plan. By turns the partisan of Edward and the vicegerent of Baliol, he seems to have forgotten or stifled his pretensions to the crown. But his character developed itself by degrees, and in maturer age became firm and consistent. According to the traditionary report, Bruce made the following proposal to Comyn: "Support my title to the crown, and I will give you my estate; or give me your estate, and I will support your's." The conditions were properly drawn out and signed by both parties; but Comyn, either through fear or treachery, revealed the whole to Edward. On this the king showed Bruce the letters of his accuser, and questioned him very hard; but the latter found means to pacify him by mild and judicious answers. Notwithstanding this, however, Edward still suspected him, though he dissembled his sentiments, until he should get the brothers of Bruce into his power, and then destroy all the family at once. The king having drank freely one evening, informed some of his lords that he had resolved to put Bruce to death next day. The earl of Gloucester, hearing this resolution, sent a messenger to Bruce, with twelve pence and a pair of spurs, as if he had meant to restore what he had borrowed. Bruce understood the meaning of his message, and prepared for flight. The ground was covered with snow, which would have discovered his flight; but, it is said, that Bruce ordered his farrier to invert the shoes of his horses, and immediately set out for Scotland in company with his secretary and groom. In his way he observed a foot-passenger whose behaviour seemed to be suspicious, and whom he soon discovered to be the bearer of letters from Comyn to the English monarch, urging the death or immediate imprisonment of Bruce. The latter, filled with resentment, immediately beheaded the messenger, and set forward to his castle of Lochmaben, where he arrived the seventh day after his departure from London. Soon after this he repaired to Dumfries, where Comyn happened at that time to reside. Bruce requested an interview with him in the convent of the Minorites, where he reproached him with his treachery. Comyn gave him the lie, and Bruce instantly stabbed him; after which he hastened out of the convent, and called "To horse." His attendants, Lindesay and Kirkpatrick, perceiving him pale, and in extreme agitation, inquired how it was with him? "Ill (replied Bruce); I doubt I have slain Comyn." "You doubt!" cried Kirkpatrick; on saying which, he rushed into the place where Comyn lay, and instantly dispatched him. Sir Robert Comyn, a relation, attempted to defend his kinsman, and shared his fate. Bruce had now gone so far, that it was in vain to think of retracting; and therefore set himself in opposition to Edward in good earnest. The justiciaries were then holding their court at Dumfries; who hearing what had happened, imagined their own lives to be in danger, and barricaded the doors. Bruce ordered the house to be set on fire: upon which they surrendered; and Bruce granted them leave to depart out of Scotland without molestation.

128 Edward's designs against the family of Bruce.

129 Robert Bruce makes his escape,

130 And kills John Comyn.

131 Opinion of Lord Hailes concerning this event.

The above account of this catastrophe is taken from the Scots historians; those of England differ in many particulars. Lord Hailes supposes both to be wrong, and that the true circumstances of the quarrel are unknown. "My opinion (says he) is, that Bruce, when he met Comyn at Dumfries, had no intention of embruing his hands in his blood, nor any immediate purpose of asserting his right to the crown of Scotland; that the slaughter of Comyn was occasioned by a hasty quarrel between two proud-spirited rivals; and that Bruce, from necessity and despair, did then assert his pretensions to the crown."

The death of Comyn affected the Scots variously, according to their different views and interests. The relations of the deceased viewed it as a cruel assassination, and joined with Edward in schemes of revenge. Some who wished well to the peace of their country, thought that it was better to submit quietly to the government of the English, than to attempt a revolution, which could not be effected without much danger and bloodshed; but, on the other hand, the friends of Bruce now saw the necessity they were under of proceeding to the coronation of the new king without loss of time. The ceremony was therefore performed at Scone on the 25th of March 1306, in presence of two earls, the bishops of St Andrew's and Glasgow, the abbot of Scone, John de Athol, and John de Menteith. It had been customary, since the days of Macbeth, for one of the family of Fife to put the crown on the king's head; and Bruce found the prepossession of the Scots in favour of this circumstance so strong, that he was obliged to seek for an expedient to satisfy them. Macduff the earl of Fife was at that time in England, where he had married a near relation of Edward. His sister was wife to the earl of Buchan, one of the heads of the family of Comyn, and consequently the determined enemy of Robert. By an uncommon effort of female patriotism, she postponed all private quarrels to the good of her country, and in her husband's absence repaired, with all his warlike accoutrements, to Bruce, to whom she delivered them up, and placed the crown upon his head. This crown is said to have been made by one Conyers an Englishman, who narrowly escaped being punished for it by Edward.

132 Robert crowned king of Scotland by a woman.

The king of England received intelligence of all these pro-

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proceedings with aſtoniſhment; and without delay ſent a body of troops under the command of Aymer de Valence earl of Pembroke, to ſuppreſs the rebellion. Bruce omitted nothing for his defence. He had always been conſidered by his countrymen as a promiſing accompliſhed young nobleman, but firmly attached to Edward's perſon and government; for which reaſon he had not been truſted by thoſe independent patriots who joined Wallace. But their confidence was now gained by his rendering himſelf ſo obnoxious to Edward, that no poſſibility of a reconciliation was left; and he ſoon ſaw himſelf at the head of a ſmall army. With theſe, who conſiſted of raw and unexperienced ſoldiers, Bruce formed a camp at Methven near Perth, which laſt was the head-quarters of the enemy; but knowing the diſadvantage under which he laboured from the inexperience of his men, he reſolved to act upon the defenſive. The Engliſh general at laſt ſent Bruce a challenge to fight him, which was accepted; but the day before the battle was to have been fought by agreement, the Scots were attacked by ſurpriſe, and totally defeated. Bruce behaved with the greateſt valour, and had three horſes killed under him. Being known by the ſlaughter which he made, John Mowbray, a man of great courage and reſolution, ruſhed upon him, and catching hold of his horſe's bridle, cried out, "I have hold of the new-made king!" but he was delivered by Chriſtopher Seaton. Some Scottiſh hiſtorians have aſſerted, that on this occaſion all the priſoners of note were put to death; but others inform us, that though Edward did ſend orders to that purpoſe, the Engliſh general pardoned all thoſe who were willing to ſwear fealty to his maſter: however, it is certain, that after the battle of Methven, many priſoners were hanged and quartered.

133 He is defeated at Methven

134 Is diſtreſſed after this defeat.

This diſaſter almoſt gave the finiſhing ſtroke to the affairs of Bruce. He now found himſelf deſerted by a great part of his army. The Engliſh had taken priſoners great numbers of women whoſe huſbands followed Bruce; and all thoſe were now ordered, on pain of death, to accompany their huſbands. Thus was Bruce burdened with a number of uſeleſs mouths, and found it hard to ſubſiſt. The conſequence was, that moſt of his men departed with their families, ſo that in a few days his army dwindled down to 500. With theſe he retreated to Aberdeen, where he was met by his brother Sir Neil, his wife, and a number of other ladies, all of whom offered to follow his fortune through every difficulty. But, however heroic this behaviour might be, it put Bruce to ſome inconvenience, as he could ſcarce procure ſubſiſtence; and therefore he perſuaded the ladies to retire to his caſtle of Kildrommey, under the protection of Sir Neil Bruce and the Earl of Athol. In the mean time the deſertion among Bruce's troops continued, ſo that now he had with him no more than 200 men; and as winter was coming on, he reſolved to go into Argyleſhire, where Sir Neil Campbell's eſtate lay, who had gone before to prepare for his reception.

135 Reaches Argyleſhire with great difficulty.

In his way thither he encountered incredible difficulties; and ſome of his followers being cut off at a place called *Dalry*, the reſt were ſo diſheartened, that they all forſook him, excepting Sir Gilbert Hay, Sir James (ſometimes called Lord) Douglas, and a few domeſtics. Bruce, however, kept up the ſpirits of his little party by recounting to them the adventures of princes and patriots in circumſtances ſimilar to his own. Having croſſed Lochlomond in a ſmall crazy boat, he was diſcovered by his truſty friend the Earl of Lenox, who had been proſcribed in England, and now lived in a kind of exile on his own eſtate. The meeting between theſe friends was very affecting, and drew tears from the eyes of all preſent. Lenox, who had heard nothing of Bruce's misfortunes, furniſhed him and his half-famiſhed attendants with plenty of proviſions: but being ſoon made ſenſible that it was impoſſible for them to live in a place where they were well known, and ſurrounded by enemies, Bruce reſolved to ſeek out ſome more ſafe habitation. For this purpoſe Sir Neil Campbell had already provided ſhipping; but our adventurers had ſcarcely ſet ſail, when they were purſued by a large ſquadron of the enemy's fleet. The bark which carried the earl of Lenox eſcaped with the utmoſt difficulty to Cantire, where Bruce was already landed: and, at their meeting, both agreed that their perſons ſhould never afterwards be ſeparated while they remained alive.

136 Meets with the earl of Lenox;

137 With whom he flies to Cantire,

In the mean time Edward having compromiſed ſome differences with his Engliſh ſubjects, reſumed his old project of entirely ſubduing Scotland; and his intention now appears to have been to divide the lands of ſuch as he ſuſpected of diſaffection among his Engliſh followers. He ordered a proclamation to be made, that all who had any title to the honour of knighthood, either by heritage or eſtate, ſhould repair to Weſtminſter to receive all military ornaments, their horſes excepted, from his royal wardrobe. As the prince of Wales came under this denomination, he was the firſt who underwent the ceremony; which gave him a right to confer the like honour on the ſons of above 300 of the chief nobility and gentry of England. The prince then repaired, at the head of this gallant train, to Edward; who received them, ſurrounded by his nobility, in the moſt ſolemn manner. The king then made a ſpeech on the treachery of the Scots, whoſe entire deſtruction he vowed. He declared his reſolution of once more heading his army in perſon; and he deſired, in caſe of his death, that his body might be carried to Scotland, and not buried till ſignal vengeance was taken on the perfidious nation. Having then ordered all preſent to join him within fifteen days, with their attendants and military equipages, he prepared for his journey into Scotland. He entered the country ſoon after Bruce's defeat at Methven. The army was divided into two bodies; one commanded by the king himſelf, the other by the prince of Wales, and, under him, by the earls of Lancaſter and Hereford, with orders to proceed northwards, and penetrate into the countries where the intereſt of Bruce was ſtrongeſt. As he paſſed along, Edward cauſed all that fell into his hands, whom he ſuſpected of favouring Bruce's party, to be immediately executed. The biſhop of Glaſgow was the only exception to this barbarity; he was taken, but had his life ſpared on account of his function.

138 Edward's preparations for a new invaſion of Scotland.

139 Enters the country, and behaves with great cruelty.

In the mean time, as the prince of Wales continued his march northwards, Bruce's queen began to be alarmed for her own ſafety. She was adviſed to take ſanctuary at the ſhrine of St Duthac in Roſsſhire; but there ſhe was made priſoner by William earl of Roſs, who was of the Engliſh party. By Edward's order ſhe was ſent to London; her daughter, who was taken at the ſame time, being ſhut up in a religious houſe. The directions

140 Robert's queen and daughter taken priſoners.

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Fœdera, Tom ii p. 1013.

directions for the entertainment of the queen are still preserved ‡. She was to be conveyed to the manor of Brustewick; to have a waiting-woman and a maid-servant, advanced in life, sedate, and of good conversation: a butler, two men-servants, and a foot-boy for her chamber, sober, not riotous, to make her bed: three greyhounds when she inclines to hunt; venison, fish, and the fairest house in the manor. In 1308, she was removed to another prison; in 1312, she was removed to Windsor castle, 20 shillings per week being allowed for her maintenance. In 1314, she was committed to Rochester castle, and was not set at liberty till the close of that year.

141 Kildrommey castle taken, and the garrison massacred.

The only fortress which Bruce possessed in Scotland was the castle of Kildrommey; and it was soon besieged by the earls of Lancaster and Hereford. One Osburn treacherously burnt the magazine; by which means the garrison, destitute of provisions, was obliged to surrender at discretion. The common soldiers were hanged; Sir Neil Bruce and the earl of Athol were sent prisoners to Edward, who caused them to be hanged on a gallows 50 feet high, and then beheaded and burnt. The countess of Buchan, who had crowned King Robert, was taken prisoner; as was Lady Mary Bruce, the king's sister. Some historians say, that Edward ordered these two ladies to be shut up in wooden cages, one to be hung over the walls of the castle of Roxburgh, and the other over those of Berwick, as public spectacles: but Lord Hailes only tells us, that the countess of Buchan was put into close confinement in the castle of Berwick (F).

142 Adventures of Robert.

About this time also many others of Bruce's party were put to death; among whom were Thomas and Alexander Bruce, two of the king's brothers, and John Wallace, brother to the celebrated Sir William. Bruce himself, in the mean time, was in such a despicable situation, that it was thought he never could give more disturbance; and it was even reported that he was dead. All his misfortunes, however, could not intimidate him, or prevent his meditating a most severe revenge upon the destroyers of his family. He first removed to the castle of Dumbarton, where he was hospitably received and entertained by Angus lord of Kintyre; but, suspecting that he was not safe there, he sailed in three days to Rachrin, a small island on the Irish coast, where he secured himself effectually from the pursuit of his enemies. It was during his stay in this island, that the report of his death was generally propagated. Notwithstanding this, his party increased considerably; and, even when he landed on this island, he was attended by 300 men. However, after having lived for some time in this retreat, being apprehensive that the report of his death might be generally credited among his friends in Scotland, it was resolved to attempt the surprise of a fort held by the English under Sir John Hastings, on the isle of Arran. This was performed with success by his two friends Douglas and Sir Robert Boyd, who put the greatest part of the garrison to the sword. The king, hearing of their success, passed over into Arran; but, not knowing where his people resided, is said to have found them out by blowing a horn. He then sent a trusty servant, one Cuthbert, into his own country of Carrick; with orders, in case he found it well affected to

143 He takes a fort on the isle of Arran.

(F) M. Westminster, p. 455. says, "Capitur etiam et illa impiissima conjuratrix de Buchan, de qua consultus Rex, ait, Quia gladio non percussit, gladio non peribit; verum, propter illicitam conjurationem quam fecit, in domicilio lapideo et ferreo, in modum coronæ fabricato, firmissime obstruatur, et apud Bervicum sub dio forinsecus suspendatur, ut sit data, in vita et post mortem, speculum viatoribus, et opprobrium tempiternum." Other English historians, copying M. Westminster, have said the same thing. We cannot, therefore, blame Abercrombie for saying, "She was put in a wooden cage shaped like a crown, and in that tormenting posture hung out from high walls or turrets to be gazed upon and reproached by the meanest of the multitude:" Vol. I. p. 579. Hemingford, Vol. I. p. 221. relates the story in a manner somewhat different. He says, that the earl of Buchan her husband sought to kill her for her treason; but that Edward restrained him, and ordered her to be confined in a wooden cage.

The intentions of Edward I. touching the durance of the countess of Buchan, will be more certainly learned from his own orders, than from the report of M. Westminster. His orders run thus: "By letters under the privy-seal, be it commanded, that the chamberlain of Scotland, or his deputy at Berwick upon Tweed, do, in one of the turrets of the said castle, and in the place which he shall find most convenient, cause construct a cage strongly latticed with wood (*de fusin*, i. e. beams of timber or palisades), cross-barred, and secured with iron, in which he shall put the countess of Buchan. And that he take care that she be so well and safely guarded therein, that in no sort she may issue therefrom. And that he appoint one or more women of Berwick, of English extraction, and liable to no suspicion, *who shall minister to the said countess in eating and drinking, and in all things else convenient, in her said lodging place.* And that he do cause her to be so well and strictly guarded in the cage, that she may not speak with any one, man or woman, of the Scottish nation, or with any one else, saving with the women who shall be appointed to attend her, or with the guard who shall have the custody of her person. And that the cage be so constructed, *that the countess may have therein the convenience of a decent chamber* (esement de chambre courtoise); nevertheless, that all things be so well and surely ordered, that no peril arise touching the right custody of the said countess. And that he to whom the charge of her is committed shall be responsible, body for body; and that he be allowed his charges." *Fœdera*, T. ii. p. 1014.

Such were the orders of Edward I. and *he* surely was not a man who would suffer his orders to be disobeyed. Here, indeed, there is a detail concerning the custody of a female prisoner, which may seem ridiculously minute, but which is inconsistent with the story related by M. Westminster and other historians. To those who have no notion of any cage but one for a parrot or a squirrel, hung out at a window, we despair of rendering this mandate intelligible.

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to his cause, to light a fire on a certain point near his castle of Tunberry, whence it could be discerned in Arran. Bruce and his party perceived the signal, as they thought, and immediately put to sea. Their voyage took up but little time; and as Bruce had now 400 men along with him, he resolved immediately to act on the offensive. His first exploit was to surprise his own castle of Tunberry, which had been given, along with Bruce's estate, to lord Henry Percy. Him he drove out, along with the English garrison; but, in the mean time, he met with his servant Cuthbert, who gave him disagreeable intelligence. This man had met with very little encouragement on his landing in Scotland; in consequence of which he had not lighted the fire agreed upon as a signal of his success, that which Bruce had observed having been kindled by accident. He also told him, that the English were in full possession of the country, and advised his master to be upon his guard. Soon after this the king was joined by a lady of fortune, who brought along with her 40 warriors. By her he was first particularly informed of the miserable fate of his family and relations; which, instead of disheartening, animated him the more with a desire of revenge. However, he did not immediately attempt any thing himself, but allowed Douglas to attempt the recovery of his estate of Douglas-dale, as Bruce himself had recovered his in Carrick. In this expedition Douglas was joined by one Thomas Dickson, a man of considerable fortune, and who gave him intelligence concerning the state of the country. By his advice he kept himself private till Palm Sunday; when he and his followers with covered armour repaired to St Bride's church, where the English were performing divine service. The latter were surprised, but made a brave defence; though, being overpowered by numbers, they were at last obliged to yield. Douglas, without farther resistance, took possession of his own castle, which he found well furnished with arms, provisions, and money. He destroyed all that he could not carry with him, and also the castle itself, where he knew that he must have been besieged if he had kept it.

144 And the castle of Tunberry in Carrick.

145 Douglas recovers his own estate.

While Bruce and his friends were thus signalizing themselves, and struggling with the English under so many disadvantages, it is natural to think that they must have met with many dangerous and difficult adventures. Many of these, indeed, are related by the Scots historians; but most of them have the appearance of fables, and it is now impossible to distinguish the true from the false; for which reason we shall pass them all over in silence, confining ourselves only to those facts which are at once important and well authenticated.

In 1307, the earl of Pembroke advanced into the west of Scotland to encounter Bruce. The latter did not decline the combat; and Pembroke was defeated. Three days after this, Bruce defeated with great slaughter another English general named Ralph de Montherner, and obliged him to fly to the castle of Air. The king laid siege to the castle for some time, but retired at the approach of succours from England. This year the English performed nothing, except burning the monastery at Paisley. Edward, however, resolved still to execute his utmost vengeance on the Scots, though he had long been retarded in his operations by a tedious and dangerous indisposition. But now, supposing that his malady was decreased so far that he could safely proceed on his march, he offered up the horse-litter, in which he had hitherto been carried, in the cathedral church of Carlisle; and, mounting himself on horseback, proceeded on the way towards Solway. He was so weak, however, that he could advance no farther than six miles in four days; after which he expired in sight of Scotland, which he had so often devoted to destruction. With his dying breath he gave orders that his body should accompany his army into Scotland, and remain unburied until the country was totally subdued; but his son, disregarding this order, caused it to be deposited in Westminster abbey.

146 The English twice defeated by Robert.

147 Death of Edward I.

The death of such an inveterate enemy to the Scottish name, could not fail of raising the spirits of Bruce and his party; and the inactive and timid behaviour of his son Edward II. contributed not a little to give them fresh courage. After having granted the guardianship of Scotland to his favourite Piers de Gaveston earl of Pembroke, whom his father had lately banished, he advanced to Cumnock, on the frontiers of Airshire, and then retreated into England; conferring the office of guardian of Scotland upon John de Bretagne earl of Richmond, a fortnight after he had bestowed it on Gaveston. He was no sooner gone than Bruce invaded Galloway. The inhabitants refusing to follow his standard, he laid waste the country; but was defeated, and obliged to retire northwards by the guardian. In the north he over-ran the country without opposition; and soon began to move southwards again in order to repair his late disgrace. He was encountered by Comyn earl of Buchan with an undisciplined body of English, whom he entirely defeated and dispersed. But about this time he was seized with a grievous distemper, which weakened him so much, that no hopes were left of his recovery. In this enfeebled situation, he was attacked by the earl of Buchan and John Mowbray an English commander, who had assembled a body of troops in order to efface their late dishonour. The armies met at Inverury in Aberdeenshire. Bruce was too weak to support himself, and therefore was held upon horseback by two attendants: but he had the pleasure of seeing his enemies totally defeated, and pursued with great slaughter for many miles; and it is reported, that the agitation of his spirits on that day proved the means of curing him of his disease. This battle was fought on the 22d of May 1308.

148 Robert defeated in Galloway.

149 He defeats the English in his turn and recovers from dangerous disease.

The king of Scotland now took revenge of his enemies, after the manner of that barbarous age, by wasting the country of Buchan with fire and sword. His successes had so raised his character, that many of the Scots who had hitherto adhered to the English cause, now came over to that of Robert. Edward, the king's brother, invaded Galloway, and defeated the inhabitants of that country. John de St John, an English commander, with 1500 horsemen, attempted to surprise him; but Edward having received timely information of his designs, ordered the infantry and meaner part of his army to entrench themselves strongly, while he himself, with no more than 50 horsemen, well armed, under cover of a thick mist, attacked his enemies, and put them to flight. After this he reduced all the fortresses in the country, and totally expelled the English from it. About this time also, Douglas, when roving about the mountainous

150 Successes of Edward Bruce.

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tainous part of Tweedale, surprised and made prisoners Thomas Randolph the king's nephew, and Alexander Stewart of Bonkhill, who had hitherto continued inimical to the interests of Robert. Randolph was conducted to the king, but talked so him in an haughty strain; upon which his uncle put him into close confinement.

151 The Lord of Lorn defeated, and his castle taken.

The next exploit of Robert was against the lord of Lorn, a division of Argyleshire. It was this nobleman who had reduced the king to such straits after his defeat at Methven; and he now resolved to take ample revenge. Having entered the country, the king arrived at a narrow pass, where the troops of Lorn lay in ambush. This pass had a high mountain on the one side, and a precipice washed by the sea on the other; but Robert having ordered Douglas to make a circuit and gain the summit of the mountain with part of the army, he entered himself with the rest. He was immediately attacked; but Douglas with his men rushed down the hill, and decided the victory in favour of the king; who soon after took the castle of Dunstaffnage, the chief residence of this nobleman.

152 Unsuccessful negociations for peace.

While Robert and his associates were thus gaining the admiration of their countrymen by the exploits which they daily performed, the English were so unsettled and fluctuating in their counsels, that their party knew not how to act. Edward still imagined that there was a possibility of reconciling the Scots to his government: and for this purpose he employed William de Lambyrton, bishop of St Andrew's, who, after having been taken prisoner, and carried from one place of confinement to another, had at last made such submissions, as procured first his liberty, and then the confidence of Edward. This ecclesiastic having taken a most solemn oath of fidelity to Edward, now resolved to ingratiate himself, by publishing against Robert and his adherents a sentence of excommunication, which had been resolved on long before. This, however, produced no effect; and the event was, that in 1309, through the mediation of the king of France, Edward consented to a truce with the Scots. This pacific disposition, however, lasted not long. The truce was scarcely concluded, when Edward charged the Scots with violating it, and summoned his barons to meet him in arms at Newcastle: yet, probably being doubtful of the event of the war, he empowered Robert de Umfraville, and three others, to conclude a new truce; declaring, however, that he did this at the request of Philip king of France, as his dearest father and friend, but who was in no sort to be considered as the ally of Scotland.

153 Edward invades Scotland without success.

The new negociations were soon interrupted. They were again renewed; and in the beginning of the year 1310 the truce was concluded, but entirely disregarded by the Scots. The progress of Bruce now became very alarming. The town of Perth, a place at that time of great importance, was threatened; and to relieve it, Edward ordered a fleet to sail up the river Tay: he also commanded the earl of Ulster to assemble a body of troops at Dublin, and from thence to invade Scotland; his own barons were ordered to meet him in arms at Berwick. About the end of September, he entered Scotland; passed from Roxburgh, through the forest of Selkirk, to Biggar; from thence he penetrated into Renfrew; and turning back by the way of Linlithgow, he retreated to Berwick, where he continued inactive for eight months.

During this invasion, Robert had carefully avoided a battle with the English: well knowing, that an invasion undertaken in autumn would ruin the heavy armed cavalry, on which the English placed their chief dependence. His cause was also favoured by a tempest which prevailed at this time in Scotland; for as magazines and other resources of modern war were then unknown, the English army were greatly retarded in their operations, and found it impossible to subsist in the country.

154 Linlithgow castle taken by the Scots.

The spirit of enterprise had now communicated itself to all ranks of people in Scotland. In 1311, the castle of Linlithgow was surprised by a poor peasant, named *William Bannock*. The English garrison were secure, and kept but a slight guard; of which Bannock being informed, concealed eight resolute men in a load of hay, which he had been employed to drive into the castle. With these, as soon as the gate was opened, he fell upon the feeble guard, and became master of the place; which was dismantled by Robert, as well as all the other castles taken in the course of the war.

155 Robert invades England, and takes Perth on his return.

Edward now resolved to invade Scotland again; and for this purpose ordered his army to assemble at Roxburgh. But Robert, not contented with defending his own country, resolved in his turn to invade England. He accordingly entered that country, and cruelly ravaged the bishopric of Durham. He returned loaded with spoil, and laid siege to Perth. After remaining six weeks before that place, he raised the siege, but returned in a few days; and having provided scaling ladders, approached the works with a chosen body of infantry. In a dark night he made the attack: and having waded through the ditch though the water stood to his throat, he was the second man who reached the top of the walls. The town was then soon taken; after which it was plundered and burnt, and the fortifications levelled with the ground. This happened on the 8th of January 1312.

156 Invades England a second time with great success.

Edward was now become averse to the war, and renewed his negociations for a truce; but they still came to nothing. Robert again invaded England; burnt great part of the city of Durham; and even threatened to besiege Berwick, where the king of England had, for the time, fixed his residence. He next reduced the castles of Butel, Dumfries, and Dalswinton, with many other fortresses. The castle of Roxburgh, a place of the utmost importance, next fell into his hands. The walls were scaled while the garrison was revelling on the eve of Lent. They retreated into the inner tower; but their governor, a Frenchman, having received a mortal wound, they capitulated.

157 The Castle of Edinburgh taken by Randolph.

Randolph, the king's nephew, who had been imprisoned, as we have already observed, was now received into favour, and began to distinguish himself in the cause of his country. He blockaded the castle of Edinburgh so closely, that all communication with the neighbouring country was cut off. The place was commanded by one Leland, a knight of Gascony; but the garrison suspecting his fidelity, imprisoned him in a dungeon, and chose another commander in his stead. One William Frank presented himself to Randolph, and informed him how the walls might be scaled. This man in his youth had resided in the castle: and having

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an intrigue with a woman in the neighbourhood, had been accustomed to descend the wall, during the night, by means of a ladder of ropes; whence, by a steep and difficult path, he arrived at the foot of the rock. Randolph himself, with 30 men, undertook to scale the castle walls at midnight. Frank was their guide, who still retained a perfect memory of the path, and who first ascended the wall. But before the whole party could reach the summit, an alarm was given, the garrison ran to arms, and a desperate combat ensued. The English fought valiantly till their commander was killed; after which they threw down their arms. Leland, the former governor, was released from his confinement, and entered into the Scottish service.

In 1313, king Robert found the number of his friends increasing with his successes. He was now joined by the earl of Athol, who had lately obtained a grant of lands from Edward. This year, through the mediation of France, the conferences for a truce were renewed. These, however, did not retard the military operations of the Scots. Cumberland was invaded and laid waste: the miserable inhabitants besought Edward's protection; who commended their fidelity, and desired them to defend themselves. In the mean time, Robert, leaving Cumberland, passed over into the isle of Man, which he totally reduced. Edward found great difficulties in raising the supplies necessary for carrying on the war; but at last overcame all these, and, by the beginning of the year 1314, was prepared to invade Scotland with a mighty army. In March he ordered his ships to be assembled for the invasion; invited to his assistance Eth O'Connor, chief of the Irish of Connaught, and 26 other Irish chiefs; summoned them and his subjects in Ireland to attend his standard, and gave the command of these auxiliaries to the earl of Ulster. His barons were summoned to meet him at Berwick on the 11th of June; and 22,000 foot-soldiers, from the different counties of England and Wales, were required by proclamation to assemble at Wark.

158 Robert invades England, and reduces the isle of Man.

In the mean time, the successes of the Scots continued. Edward Bruce had reduced the castles of Rutherglen and Dundee, and laid siege to the castle of Stirling. The governor of the place agreed to surrender, if he was not relieved before the 24th of June 1314; and to this Edward agreed, without consulting his brother. The king was highly displeased with this rash treaty, which interrupted his own operations, allowed the English time to assemble their utmost force, and at last obliged him either to raise the siege or to put all on the event of a single battle. However, he resolved to abide by the agreement, and to meet the English by the appointed day. Having appointed a general rendezvous of his forces between Falkirk and Stirling, he found their number to amount to somewhat more than 30,000, besides upwards of 15,000 of an undisciplined rabble that followed the camp. He determined to wait the English in a field which had the brook or *burn* of Bannock on the right, and Stirling on the left. His chief dread was the strength and number of the English cavalry, and these he took every method to oppose. The banks of the brook were steep in many places, and the ground between it and Stirling was partly covered with wood. The king commanded many pits, of about a foot in breadth and two or three feet deep, to be dug in all places where cavalry could have access. From the description given of them by the historians of those times, there seem to have been many rows of them, with narrow intervals. They were carefully covered with brushwood and sod, so that they would easily be overlooked by a rash and impetuous enemy. It is said by some authors, that he also made use of caltrops, to annoy the horses in the most effectual manner.

159 Edward Bruce enters into an imprudent treaty with the governor of Stirling.

160 Which brings on the decisive engagement of Bannock burn.

On the 23d of June, the Scots received intelligence of the approach of Edward, and prepared to decide the fate of their country. The front of their army extended from the brook called *Bannockburn* to the neighbourhood of St Ninians, pretty nearly upon the line of the present turnpike-road from Stirling to Kilsyth; and the stone in which the king is said to have fixed his standard is still to be seen. Robert commanded all his soldiers to fight on foot. He gave the command of the centre to Douglas, and Walter the young steward of Scotland; his brother Edward had the command of the right wing, and Randolph of the left; the king himself taking charge of the reserve, which consisted of the men of Argyle, Carrick, and the islanders. In a valley to the rear, said to be to the westward of a rising ground now called *Gilles-hill*, he placed the baggage, and all the useless attendants on his army.

161 Disposition of the Scots.

Randolph was commanded to be vigilant in preventing the English from throwing succours into the castle of Stirling; but 800 horsemen, commanded by Sir Robert Clifford, made a circuit by the low grounds to the east, and approached the castle. The king, perceiving their motions, chid Randolph for his inadvertency, on which the latter hasted to encounter that body. As he advanced, the English wheeled to attack him. Randolph drew up his men in a circular form, holding out their spears on every side. At the first onset Sir William Daynecourt, an English commander of distinguished valour, was killed; but Randolph, who had only a small party with him, was surrounded on all sides, and in the utmost danger. Douglas perceived his danger, and requested the king to let him go to his assistance. Robert at first refused, but afterwards consented with reluctance. Douglas set out without delay; but as he approached he saw the English falling into disorder; upon which he called to his men to stop, and not diminish the glory of Randolph and his men by sharing their victory.

162 A party of English cavalry defeated by Randolph.

Robert was in the front of the line when the vanguard of the English appeared. He was meanly dressed, with a crown above his helmet, and a battle-ax in his hand. Henry de Bohun, an English knight, armed cap-a-pee, rode forward to encounter him. Robert did not decline the combat, and struck his antagonist so violently with his battle-ax, that he is said to have cleft him down to the chin; after which the English vanguard retreated in confusion. The Scottish generals are said to have blamed their king for his rashness in thus encountering Bohun; and he himself, conscious of the justice of their charge, only replied, "I have broke my good battle-ax."

163 An English knight killed in single combat by king Robert.

On Monday the 24th of June, the whole English army moved on to the attack. The van, consisting of archers and lancemen, was commanded by Gilbert de Clare earl of Gloucester, nephew to the English king, and Humphry de Bohun constable of England; but the ground was so narrow, that the rest of the army had not sufficient

164 Commanders of the English army.

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sufficient room to expand itself; so that it appeared to the Scots as consisting of one great compact body. The main body was brought up by Edward in person, attended by Aymer de Valence earl of Pembroke, and Sir Giles d'Argentine, two experienced commanders. Maurice abbot of Inchaffray, placing himself on an eminence, celebrated mass in the sight of the Scottish army. He then passed along the front, barefooted, with a crucifix in his hands, and in few words exhorted the Scots to fight for their rights and liberty. The Scots fell down on their knees; which being perceived by Edward, he cried out, "They yield! See, they implore mercy" "They do," answered Umfraville, one of his commanders, "they do implore mercy, but not from us. On that field they will be victorious or die."

165 The English entirely defeated.

As both parties were violently exasperated against each other, the engagement began with great fury. The king of Scotland, perceiving that his troops were grievously annoyed by the English archers, ordered Sir Robert Keith the marischal, with a few armed horsemen, to make a circuit and attack the archers in flank. This was instantly accomplished; and as the weapons of the archers were useless in a close encounter, they could make very little resistance, at the same time that their flight spread disorder through the whole army.

Robert now advanced with the reserve: the whole English army was in the utmost confusion; for the defeat of the archers had decided the victory in favour of the Scots. The young and gallant earl of Gloucester attempted to rally the fugitives, but was thrown from his horse, and cut in pieces, which increased the general confusion. At this critical moment, the numerous attendants on the Scottish camp, prompted by curiosity or the desire of plunder, issued from their retirement. The English mistook them for a body of fresh troops coming to the assistance of their enemies, and fled with precipitation on all sides. Many sought refuge among the rocks in the neighbourhood of Stirling castle, and many were drowned in the rivers. Pembroke and Sir Giles d'Argentine had never quitted Edward during the action; but now, seeing the battle irretrievably lost, Pembroke constrained the king to quit the field. D'Argentine refused to fly. He was a man of great valour, and had a high reputation in Scotland. According to the vulgar opinion, the three most eminent worthies in that age were the emperor Henry of Luxemburg, Robert Bruce, and Giles d'Argentine. He is said to have thrice encountered two Saracen warriors in Palestine, and to have killed them both each time. His valour now availed him but little; for rushing into the midst of the Scots army, he was instantly cut in pieces. Douglas, with 60 horsemen, pursued Edward close. At the Torwood he met Sir Lawrence Abernethy, who was hastening to the English rendezvous with twenty horsemen. The latter soon abandoned the cause of the vanquished, and joined Douglas in the pursuit of Edward, who fled to Linlithgow. He had scarcely arrived there, when he was alarmed by the approach of the Scots, and again obliged to fly. Douglas and Abernethy followed him with such assiduity, that (as Lord Hailes chooses to Latinize the expression of an ancient historian) *ne vel mingendi locus concederetur*; but, notwithstanding their utmost efforts, Edward got safe to Dunbar, where he was received by the earl of March, who protected him till he could be conveyed by sea to England.

166 Edward escapes to Dunbar, and thence to England.

Such was the decisive battle of Bannockburn, the greatest defeat the English ever sustained from the Scots. On the side of the latter no persons of note were slain, excepting Sir William Vipont, and Sir Walter Ross the favourite of Edward Bruce; and so grievously was Edward afflicted by the death of this man, that he exclaimed, "O that this day's work were undone, so Ross had not died!" On the English side were slain 27 barons and bannerets, and 22 taken prisoners; of knights there were killed 42, and 60 taken prisoners; of esquires there fell 700; but the number of the common men who were killed or taken was never known with any certainty. The Welsh who had served in the English army were scattered over the country, and cruelly butchered by the Scottish peasants. The English, who had taken refuge among the rocks in the neighbourhood of Stirling, surrendered at discretion: the castle was surrendered, and the privy-seal of England fell into the hands of the king of Scots. The spoils of the English camp were immense, and enriched the conquerors, along with the ransom of many noble prisoners who fell into their hands. Robert showed much generosity in his treatment of the prisoners who fell to his share. He set at liberty Ralph de Monthermer, and Sir Marmaduke Twerge, two officers of high rank, without ransom; and by humane and generous offices alleviated the misfortune of the rest. The dead bodies of the earl of Gloucester and the lord Clifford were sent to England, that they might be interred with the usual solemnity. There was one Baston, a Carmelite friar and poet, whom Edward is said to have brought with him in his train to be spectator of his atchievements, and to record his triumphs. Baston was made prisoner, and obliged to celebrate the victory of Robert over the English. This he did in wretched Latin rhymes; which, however, procured his liberty. After the battle of Bannockburn, the earl of Hereford retreated to the castle of Bothwell, where he was besieged by Edward Bruce, and soon obliged to surrender. He was exchanged for the wife, sister, and daughter of the king, the young earl of Marr, and the bishop of Glasgow.

167 Loss of the English in the battle of Bannockburn.

168 The king's family set at liberty.

The terror of the English after the defeat at Bannockburn is almost incredible. Walsingham asserts, that many of them revolted to the Scots, and assisted them in plundering their own country. "The English," says he, "were so bereaved of their wonted intrepidity, that an hundred of that nation would have fled from two or three Scotsmen." Edward Bruce and Douglas entered England on the eastern side, ravaged Northumberland, and laid the bishopric of Durham under contribution. From thence they proceeded to Richmond, laid Appleby and some other towns in ashes, and returned home loaded with plunder. Edward summoned a parliament at York, in order to concert means for the public security; and appointed the earl of Pembroke, formerly the guardian of Scotland, to be guardian of the country between the Trent and the Tweed. Robert, however, sent ambassadors to treat of a peace; but the Scots were too much elated with their good fortune to make concessions, and the English were not yet sufficiently humbled to yield to all their demands. The ravages of war were again renewed: the Scots continued their incursions into England, and levied contributions in different places.

169 Consternation of the English.

In 1315, the English affairs seemed a little to revive.

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170 Expedition of Edward Bruce into Ireland,

The Scots, indeed, plundered Durham and Hartlepool; but they were repulsed from Carlisle, and failed in an attempt on Berwick. The Irish of Ulster, oppressed by the English government, implored the assistance of Robert, and offered to acknowledge his brother Edward as their sovereign; who accordingly landed at Carrickfergus on the 25th of May 1315, with 6000 men.—This was an enterprize evidently beyond the power of Scotland to accomplish, and which could not but be perceived by Robert. However, there were motives which induced him to consent. The offer of a crown, though ever so visionary, inflamed the ambition of Edward Bruce, whose impetuous valour made no account of difficulties, however great. It might have been deemed ungenerous, and perhaps would not have been politic or safe, to have rejected the proposals of the Irish for the advancement of his brother, to whom the king owed more than he could repay. Besides, the invasion of Ireland seemed a proper expedient for dividing the English forces. The event proved unfortunate. Edward, after performing and suffering more than could almost have been expected from human nature, was at last defeated and killed by the English, as is related under the article IRELAND, n° 42.

171 He is defeated and killed,

The king himself had gone over into Ireland, in order to assist his brother in attempting the subjection of that country; and during his absence the English had made several attempts to disturb the tranquillity of Scotland. The earl of Arundel invaded the forest of Jedburgh with a numerous army; but being drawn into an ambuscade by Douglas, he was defeated with great loss. Edmund de Cailaud, a knight of Gascony and governor of Berwick, invaded and wasted Teviotdale; but while he was returning home loaded with spoil, he was attacked, defeated, and killed by Douglas. Soon after this, intelligence was conveyed to Douglas that one Robert Neville had boasted that he would encounter him whenever he saw his banner displayed. Douglas did not long delay to give him an opportunity. He advanced to the neighbourhood of Berwick, displayed his banner, and burnt some villages. Neville, provoked at these ravages, took the field, encountered Douglas, and was defeated and killed. By sea the English invaded Scotland, and anchored off Inverkeithing in the frith of Forth, where they soon after landed. Five hundred men, under the command of the earl of Fife and the sheriff of that country, attempted to oppose their landing, but were intimidated by the number of their enemies. William Sinclair bishop of Dunkeld happened to meet the fugitives; and having by his reproaches obliged them to rally, he led them on again to the charge, and drove the English to their ships with considerable loss. For this exploit Robert conferred the title of *the king's bishop* on Sinclair; and he was long remembered by his countrymen on this account.

172 Unsuccessful attempts of the English on Scotland,

173 Negotiations with the Pope,

In 1317, after king Robert had returned from his Irish expedition, a bull was issued by the pope (John XXII.) commanding a two years truce between England and Scotland, under pain of excommunication. Two cardinals were dispatched into Britain to make known his commands; and they were privately empowered to inflict the highest spiritual censures on Robert Bruce, or whomsoever else they thought proper. About the beginning of September 1317, two messengers were sent to Robert by the cardinals. The king gave them a gracious reception; and after consulting with his barons, returned for answer, that he very much desired a good and perpetual peace, either by the mediation of the cardinals, or by any other means. He allowed the *open* letters from the pope, which recommended peace, to be read in his presence, and listened to them with due respect. But he would not receive the *sealed* letters addressed to *Robert Bruce governor of Scotland*, alleging, that there might be many of his barons whose names were *Robert Bruce*, and that these barons might probably have some share in the government. Unless, therefore, the letters were addressed to him as *king of Scotland*, he could not receive them without advice of his parliament, which he promised immediately to assemble on the occasion. The messengers attempted to apologise for the omission of the title of KING. "The holy church was not wont," they said, "during the dependence of a controversy, to write or say any thing which might be interpreted as prejudicial to the claims of either of the contending parties." "Since then," answered the king, "my spiritual father and my holy mother would not *prejudice* the cause of my adversary by bestowing on me the appellation of *king* during the dependence of the controversy, they ought not to have *prejudiced* my cause by withdrawing that appellation from me. I am in possession of the kingdom of Scotland; all my people call me king; and foreign princes address me under that title; but it seems that my parents are partial to their English son. Had you presumed to present letters with such an address to any other sovereign prince, you might perhaps have been answered in a harsher style; but I reverence you as the messengers of the holy see."

174 Spirited behaviour of Robert,

The messengers, quite abashed with this reply, changed the discourse, and requested the king that he would consent to a temporary cessation of hostilities; but to this he declared, that he never would consent, while the English daily invaded and plundered his people. His counsellors, however, informed the messengers, that if the letters had been addressed to the *king of Scots*, the negociations would instantly have been opened. This disrespectful omission they imputed to the intrigues of the English at the court of Rome, hinting at the same time that they had received this intelligence from Avignon.

175 A papal truce proclaimed in Scotland,

When the messengers had informed the cardinals of these proceedings, the latter determined to proclaim the papal truce in Scotland; in which hazardous office they employed Adam Newton, guardian of the monastery of Minorites at Berwick, who was charged with letters to the clergy of Scotland, particularly to the bishop of St Andrew's. The monk found the king encamped with his army in a wood near Old Cambus, making preparations for assaulting Berwick. Personal access was denied to the king; but the monk, in obedience to his masters, proclaimed the truce by the authority of the pope. The king sent him for answer, that he would listen to no bulls, till he was treated as king of Scotland, and had made himself master of Berwick.

176 Which is disregarded by the king

The poor monk, terrified at this answer, requested either a safe conduct to Berwick, or permission to pass into Scotland, and deliver his letters to the Scottish clergy. Both were refused; and he was commanded to leave the country without loss of time. He set out for Berwick; but in his way thither was attacked by robbers,

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robbers, or some who pretended to be so. By them he was stripped and robbed of all his parchments, together with his letters and instructions: the robbers also, it is said, tore the pope's bull, without any regard to its sanctity.

177 Berwick besieged and taken by the Scots.

In 1318, king Robert proceeded in his enterprize against Berwick, but resolved to employ artifice as well as force in the reduction of it. A citizen of Berwick, by name *Spalding*, having been ill used by the governor, resolved to revenge himself; and therefore wrote a letter to a certain Scottish lord, whose relation he had married, offering on a certain night to betray the post where he kept guard. The nobleman communicated this important intelligence to the king. "You did well," said Robert, "in making me your confident; for if you had told this either to Randolph or Douglas, you would have offended the one whom you did not trust: Both of them, however, shall aid you in the execution of the enterprize." The king then commanded him to repair to a certain place with a body of troops; to which place he also gave separate orders to Douglas and Randolph to repair at the same hour, each with a body of troops under his command. The forces thus cautiously assembled marched to Berwick, and, assisted by Spalding, scaled the walls, making themselves masters of the town in a few hours. The garrison of the castle, perceiving that the number of Scots was but small, made a desperate sally with the men who had fled into the castle from the town; but, after an obstinate conflict, they were defeated and driven back, chiefly by the extraordinary valour of a young knight named *Sir William Keith of Galston*.—This happened on the 28th of March 1318.

178 Who made England with great success.

King Robert no sooner heard of the success of his forces against the town, than he hastened to lay siege to the castle of Berwick. This was soon obliged to capitulate; after which the Scots entered Northumberland, and took the castles of Wark, Harbottle, and Mitford. In May, they again invaded England, and penetrated into Yorkshire. In their progress they burnt the towns of Northallerton, Boroughbridge, Scarborough, and Skipton in Craven, forcing the inhabitants of Ripon to redeem themselves by paying 1000 merks: after which they returned to Scotland with much booty; and, as an English historian expresses it, "driving their prisoners before them like flocks of sheep."

This year the interposition of the pope was obtained against Robert, with a view to intimidate the Scottish nation; and the two cardinals residing in England were commanded to excommunicate *Robert Bruce and his adherents*, on account of his treatment of the messengers of the holy see, and his assault of Berwick, after a truce had been proclaimed by the papal authority.—

179 King Robert excommunicated by the Pope.

This sentence was accordingly put in execution, though Robert had certainly been excommunicated *once*, if not oftener, before. Messengers were sent from Scotland to Rome, in order to procure a reversal of the sentence; but Edward dispatched the bishop of Hereford, and Hugh d'Espencer the Elder, to counteract this negociation, informing his holiness at the same time of certain intercepted letters which had been written from Avignon to Scotland; upon which the pope ordered all the Scots residing at Avignon, and all of that place who had corresponded with Scotland, to be taken into custody.

The most remarkable transaction of this year, however, was the defeat and death of Edward Bruce in Ireland; of which an account is given under the article IRELAND, n° 42. His body was quartered, and distributed for a public spectacle over Ireland, and his head was presented to Edward by John lord Bermingham the commander of the English army; in return for which service, he was rewarded with the title of *earl of Louth*.

In the mean time Edward, who had summoned a parliament to meet at Lincoln, was obliged to prorogue it on account of the Scottish invasion, and to assemble an army at York for the defence of his country. At Michaelmas it was determined, in a parliament held at London, that every city and town in England should furnish a certain proportion of men completely armed. Thus a considerable body of troops was soon raised; but, when they assembled at York, their party-animosities and mutual distrust rose to such an height, that it was found necessary to send them back to their habitations.

In 1319, Edward, having succeeded so well in his negociations with the court of Rome, resolved to make similar attempts with other powers to the prejudice of the Scottish nation. Accordingly he requested the count of Flanders to prohibit the Scots from entering his country: but to this request he received the following remarkable reply: "Flanders is the common country of all men; I cannot prohibit any merchants from trafficking thither, for such prohibition would prove the ruin of my people." Finding himself baffled in this attempt, the English monarch once more determined to have recourse to war; and with this view commanded his army to assemble at Newcastle upon Tyne, on the 24th of July 1319: but before he proceeded, he requested the prayers of the clergy for the success of his expedition; and, to render their prayers the more effectual, he at the same time demanded from them a great sum of money by way of loan.

Edward invades Scotland.

181 Berwick besieged by the English.

Every thing being now in readiness, the English army approached Berwick, which was commanded by Walter the Steward of Scotland. This nobleman had long apprehended an attack from the English, and had taken every means of defence in his power. The enemy, however, confiding in their numbers, made a general assault; but were repulsed on the 7th of September, after a long and obstinate contest. Their next attempt was on the side towards the river. At that time the walls of Berwick were of an incomodiable height; and it was proposed to bring a vessel close to them, from whence the troops might enter by a drawbridge let down from the mast. But the Scots annoyed the assailants so much, that they could not bring this vessel within the proper distance; and at the ebb of the tide it grounded, and was burnt by the besieged.—The English had then recourse to a new-invented engine which they called a sow, but for what reason it was so called is unknown. In many particulars it resembled the *vinea* or *aristaria* of the ancients. It appears to have been a large fabric composed of timber, and well-roofed, having stages within it, and in height surpassing the wall of the town. It was moved upon wheels, and served for the double purpose of conducting the miners to the foot of the wall, and armed men to the storm. This machine was counteracted by one contrived by John

182 A new-invented engine called a sow.

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Crab, a Flemish engineer in the Scots service. This was a kind of moveable crane, whereby great stones might be raised on high, and then let fall upon the enemy. The English made a general assault on the quarter towards the sea, as well as on the land side; so that the garrison, exhausted by continual fatigue, could scarce maintain their posts. The great engine moved on to the walls; and, though stones were incessantly discharged against it from the crane, their effect was so small, that all hope of preserving Berwick was lost.

183 Destroyed by the Scots,

At length a huge stone struck it with such force, that the beams gave way, and the Scots pouring down combustibles upon it, it was reduced to ashes. The English, however, still continued the attack. The Steward, with a reserve of 100 men, went from post to post, relieving those who were wounded or unfit for combat. One soldier of the reserve only remained with him when an alarm was given that the English had burnt a barrier at the port called *St Mary's*, possessed themselves of the draw-bridge, and fired the gate. The Steward hastened thither, called down the guard from the rampart, ordered the gate to be set open, and rushed out upon the enemy. A desperate combat ensued, and continued till the close of the day, when the English commanders withdrew their troops.

184 Who invade England.

Notwithstanding this brave defence, it was evident that the town could not hold out long without a speedy relief; and Robert could not, with any probability of success, attack the fortified camp of the English. He therefore determined to make a powerful diversion in England, in order to oblige Edward to abandon the undertaking. By order of the king, 15,000 men entered England by the western marches. They had concerted a plan for carrying off the queen of England from her residence near York; but being disappointed in this attempt, they laid waste Yorkshire. The archbishop of York hastily collected a numerous body of commons and ecclesiastics, with whom he encountered the Scots at Mitton, near Borough-bridge, in the north-riding of Yorkshire. The English were instantly routed; 3000 were left dead on the field, and great part of those who fled perished in the river Swale. In this action 300 ecclesiastics lost their lives. The news of this successful inroad alarmed the besiegers of Berwick. The barons whose estates lay to the southward remote from the Scottish depredations were eager for continuing the siege. But they were opposed by those of the north; who were no less eager to abandon the enterprise, and return to the defence of their own country. With them the earl of Lancaster concurred in opinion; who, understanding that his favourite manor of Pontefract was exposed to the ravages of the Scots, departed with all his adherents. Edward, upon this, drew off the remainder of his army, and attempted to intercept Randolph and Douglas; but they eluded him, and returned in safety to Scotland.

185 The English defeated, and the siege of Berwick raised.

The unsuccessful event of this last attempt induced Edward seriously to think of peace; and accordingly a truce between the two nations was concluded on the 21st of December 1319; which interval of tranquillity the Scots made use of in addressing a manifesto to the pope in justification of their cause. This was drawn up in a spirited manner, and made a very considerable alteration in the councils of Rome. The pope, foreseeing that Robert would not be terrified into submissions, ordered Edward to make peace with him in the best manner he could. A negociation was accordingly set on foot, which soon terminated ineffectually; the truce was not renewed, and in 1322 a mutual invasion took place. The Scots penetrated into Lancashire by the western marches; and, after plundering the country, returned home with an extraordinary booty; while Edward made great preparations for an expedition into Scotland, which took place in August the same year. In this, however, he was not attended with success. Robert had caused all the cattle to be driven off, and all the effects of any value to be removed from Lothian and the Merse; fixing his camp at Culross, on the north side of the frith of Forth. His orders for removing the cattle were so punctually obeyed, that, according to common tradition, the only prey which fell into the hands of the English was a lame bull at Tranent in East Lothian. Edward, however, still proceeded, and penetrated as far as Edinburgh, but without any hopes of subduing the kingdom. His provisions being consumed, many of his soldiers perished for want; and he was obliged at last to retire without having seen an enemy. On their return, his soldiers burnt the abbeys of Holyrood, Melrose, Dryburgh, &c. killed many of the monks, and committed other sacrileges: but when they returned to their own country, and began again to enjoy a plentiful living, they indulged themselves in such excesses as were productive of mortal diseases; insomuch that, according to an English historian, almost one half of the great army which Edward had brought from England with him were destroyed either by hunger or gluttony.

186 England again invaded by the Scots, and Scotland by the English.

187 Great part of Edward's army destroyed.

No sooner were the English retired than they were pursued by the Scots, who laid siege to the castle of Norham. Edward lay at the abbey of Biland in Yorkshire, with a body of troops advantageously posted in the neighbourhood. The Scots, invited, as is said, by some traitors about the king's person, attempted to surprise him; and it was with the utmost difficulty that he made his escape to York, abandoning all his baggage and treasure to the enemy. The English camp was supposed to be accessible only by a narrow pass, but Douglas undertook to force it, and Randolph presented himself as a volunteer in this dangerous service under his friend Douglas. The Highlanders and men of the Isles climbed the precipice on which the English camp stood, and the enemy were driven out with great loss. The Scots pursued them to the very gates of York, wasted the country without controul, and returned home unmolested.

188 The English defeated and driven out of their camp.

Edward, disheartened by repeated losses, agreed to a cessation of arms "with the men of Scotland who were engaged in war with him." But the king of Scotland would not consent to it in that form; however, he gave his consent, on the proper form being employed, to which Edward now made no objection. This treaty was concluded on the 30th of March 1323, and was to endure until the 12th of June 1336. It was agreed, that, during the continuance of it, no new fortresses should be erected in Cumberland, to the north of the Tyne, or in the counties of Berwick, Roxburgh, or Dumfries; and by a very singular article it was provided, that "Bruce and the people of Scotland might procure absolution from the pope; but in case there was no peace concluded before the expiration of the truce,

189 A truce concluded between England and Scotland.

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truce, that the sentence of excommunication should revive." The treaty was ratified by Robert, under the style of the *king of Scotland*, 7th June 1323.

The next care of Robert was to reconcile himself to the church, and to obtain from the pope the title of *king*, which had been so long denied him; which at last, though not without great difficulty, was obtained. This year a son was born to the king of Scotland at Dunfermline, and named *David*. The court-poets of the time foretold, that this infant would one day rival his father's fame, and prove victorious over the English. But scarce had this future hero come into the world, when a rival began to make his appearance. John Baliol, the unfortunate king of Scotland, had long been dead; but left a son named *Edward*, heir to his pretensions to the crown. The young prince had resided on his paternal estate in Normandy, neglected and forgotten; but in 1324 was called to the court of England, for the purpose, undoubtedly, of setting him up as a rival to young David Bruce, in case his father, now broken with fatigues, should die in a short time. The negociations for peace, however, still went on; but the commissioners appointed for this purpose made little progress, by reason of demands for feudal sovereignty still made by the English. The reconciliation with the church was also broken off, by reason of the Scots keeping possession of Berwick. This had been taken during the papal truce; and Robert thought proper still to lie under the sentence of excommunication rather than to part with such an important fortress.

190 Birth of David Bruce.

191 Edward Baliol takes his appearance at the court of England.

In the beginning of the year 1327, Edward II. was deposed, and succeeded by his son Edward III. then in his 15th year. He renewed the negociations for peace, and ratified the truce which his father had made; but hearing that the Scots had resolved to invade England if a peace was not immediately concluded, he summoned his barons to meet him in arms at Newcastle, and fortified York.—We are not certainly informed of the reasons which induced the Scots at this time to disregard the truce; however, it is certain, that on the 15th of June 1327, Douglas and Randolph invaded England by the western marches, with an army of 20,000 horsemen. Against them Edward III. led an army, consisting, at the lowest calculation, of 30,000 men, who assembled at Durham on the 13th of July. The Scots proceeded with the utmost cruelty, burning and destroying every thing as they went along; and on the 18th of the same month, the English discovered them by the smoke and flames which marked their progress. They marched forward in order of battle towards the quarter where the smoke was perceived; but, meeting with no enemy for two days, they concluded that the Scots had retired. Disencumbering themselves then of their heavy baggage, they resolved by a forced march to reach the river Tyne, and, by posting themselves on the north bank of that river, to intercept the Scots on their return. On the 20th of July, the cavalry having left the infantry behind, crossed the river at Haidon: but before the rest of the army could come up, the river was so swelled by sudden rains, that it could no longer be forded; and thus the troops remained divided for several days, without any accommodation for quarters, and in the greatest want of provisions and forage. The soldiers now began to murmur; and it was resolved again to proceed southwards. The king proclaimed a reward of lands, to the value of 100l. yearly for life, to the person who should first discover the enemy "on dry ground, where they might be attacked;" and many knights and esquires swam across the river on this strange errand. The army continued its march for three days without any news of the Scots; but on the fourth day, certain accounts of them were brought by an esquire, Thomas Rokesby: who reported, that "the Scots had made him prisoner; but that their leaders, understanding his business, had set him at liberty; saying, that they had remained for eight days on the same ground, as ignorant of the motions of the English as the English were of theirs, and that they were desirous and ready to combat." With this man for their guide, the English soon came in view of the Scots. They were advantageously posted on a rising ground, having the river Were in front, and their flanks secured by rocks and precipices. The English dismounted and advanced, hoping to allure the Scots from their strong post; but in vain. Edward then sent a herald to Randolph and Douglas, with a message in the style of chivalry: "Either," says he, "suffer me to pass the river, and leave me room for ranging my forces; or do you pass the river, and I will leave you room to range yours, and thus shall we fight on equal terms." To this the Scottish commanders answered, "We will do neither. On our road hither we have burnt and spoiled the country; and here we are fixed while to us it seems good; and if the king of England is offended, let him come over and chastise us."

192 Douglas and Randolph invade England.

193 Edward III. marches against them.

194 Is obliged to offer a reward for discovering where they are.

The armies continued in sight of each other for two days; after which the English, understanding that their enemies were distressed for provisions, resolved to maintain a close blockade, and to reduce them by famine. Next day, however, they were surprised to find that the Scots had secretly decamped, and taken post two miles up the river in ground still stronger, and of more difficult access, amidst a great wood. The English encamped opposite to them near Stanhope park. At midnight Douglas undertook a most desperate enterprise, somewhat resembling those of the ancient heroes. With 200 horsemen he approached the English camp, and entered it under the guise of a chief commander calling the rounds. Having thus eluded the centinels, he passed on to the royal quarters, overthrew every thing that opposed him, and furiously assaulted the king's tent. The domestics of Edward desperately defended their master; and his chaplain, with many others of his household, were slain. However, the king himself escaped; and Douglas, disappointed of his prey, rushed through the enemy, and effected a retreat with inconsiderable loss.—The following day, the English learned from a prisoner, that orders had been issued in the Scottish camp for all men to hold themselves in readiness that evening to follow the banner of Douglas: on which, apprehending an attack in the night, they prepared for battle, lighting great fires, and keeping a strict watch; but in the morning, they were informed by two trumpeters whom they had taken prisoners, that the Scots had decamped before midnight, and were returning to their own country. This report could scarcely be credited, and the army remained for some hours in order of battle; but at length some scouts having crossed the river,

195 Desperate attempt of Douglas to carry off the king of England.

196 The Scots decamp, and return to their own country.

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river, returned with certain intelligence that the Scottish camp was totally deserted: which when the young king of England was certainly informed of, he burst into tears; for the enterprise, which thus terminated in disappointment and dishonour, had cost an immense sum. Every preparation had been made for opposing an enemy, and auxiliaries had even been procured at a most enormous expence from Hainault. These auxiliaries consisted of heavy-armed cavalry; and they were now so much worn out, that they could scarcely move. Their horses were all dead, or had become unserviceable, in a campaign of three weeks; so that they were obliged to procure horses to convey themselves to the south of England. Edward having rested at Durham for some days, marched to York, where he disbanded his army. Barbour, a Scots historian, relates, that there was a morass in the rear of the Scottish camp, which he calls the *two-mile morass*; that the Scots made a way over it with brushwood, removing it as they went along, that the English might not pursue them by the same way. The English historians are filled with descriptions of the strange appearance of the deserted camp of the Scots. They found there a number of skins stretched between stakes, which served for kettles to boil their meat; and for bread, each soldier carried along with him a bag of oatmeal, of which he made cakes, toasting them upon thin iron plates, which appear to have been part of their armour.

On the return of Douglas and Randolph, the king led his army against the eastern borders, and besieged the castle of Norham. However, in 1328, Edward, wearied out with continual losses and disappointments, consented to a perpetual peace between the two kingdoms on the following conditions. 1. The stone on which the kings of Scotland were wont to sit at the time of their coronation, shall be restored to the Scots. 2. The king of England engages to employ his good offices at the papal court for obtaining a revocation of all spiritual processes depending before the holy see against the king of Scots, or against his kingdom or subjects. 3. For these causes, and in order to make reparation for the ravages committed in England by the Scots, the king of Scots shall pay 30,000 merks to the king of England. 4. Restitution shall be made of the possessions belonging to ecclesiastics in either kingdom, whereof they may have been deprived during the war. 5. But there shall not be any restitution made of inheritances which have fallen into the hands of the king of England or of the king of Scots, by reason of the war between the two nations, or through the forfeiture of former possessors. 6. Johanna, sister of the king of England, shall be given in marriage to David, the son and heir to the king of Scots. 7. The king of Scots shall provide the princess Johanna in a jointure of 2000 l. yearly, secured on lands and rents, according to a reasonable estimation. 8. If either of the parties shall fail in performing these conditions, he shall pay 2000 pounds of silver to the papal treasury.

197. The treaty of Northampton.

This peace, ratified at Northampton, is styled *ignominious* by the English historians, and the marriage of the Scots prince to the king of England's sister, denominated *that base marriage*; because at this time all pretensions to sovereignty over Scotland were given up, though they had in vain attempted to establish them by a ruinous war of 20 years. The marriage of the infant prince was celebrated on the 12th of July 1328.

198 King Robert dies.

On the 7th of June 1329 died Robert Bruce, unquestionably the greatest of all the Scottish monarchs. His death seems to have been occasioned by the excessive fatigues of military service; and his disease, called by the historians of those times a leprosy, was probably an inveterate scurvy, occasioned by his way of living. He died at the age of 55. He was married to Isabella, daughter of Donald the tenth earl of Marr; by whom he had a daughter named Marjory, married to Walter the steward of Scotland; whose husband died in 1326. The second wife of Robert was Elisabeth, the daughter of Aymer de Burgh earl of Ulster. By her he had a son, David II.; a daughter named Margaret, married to William earl of Sutherland; another, named Matilda, married to an esquire named Thomas Isaac; and Elisabeth, married to Sir Walter Oliphant of Gask. He had also a natural son named Robert.

199 Account of a conspiracy against him.

That king Robert I. was a man of unquestionable virtue and humanity, as well as unequalled in the knowledge of the military art, must be evident from many particulars already related. The only questionable part of his character is his severe punishment of a conspiracy formed against him in the year 1320; a relation of which, to avoid interrupting our detail of more important matters, we have deferred till now.—The chief of the conspirators were William de Soulis, whose ancestor had been a candidate for the crown of Scotland; the countess of Strathern, and some other persons of high rank. The countess discovered the plot; after which Soulis confessed the whole, and was punished with perpetual imprisonment; as well as the countess, notwithstanding her having made the discovery. Gilbert de Malyerb and John de Logie, both knights, and Richard Brown an esquire, were put to death as traitors: but the person most lamented was Sir David de Brechin, for his bravery styled *the flower of chivalry*. He was nephew to the king, and served with great reputation against the Saracens. To him the conspirators, after having exacted an oath of secrecy, revealed their designs. He condemned their undertaking, and refused to share in it; but did not discover it, on account of the oath he had taken. Yet for this concealment he was tried as a traitor, condemned and executed, without regard to his personal merit or his relation to the king. The conspirators were tried before the parliament at Scone in 1320; and this session, in which so much blood was shed, was long remembered by the vulgar under the name of the *black parliament*. Whether there was any thing real in this conspiracy, or whether the king only made use of this pretence to rid himself of such as were obnoxious to him, cannot now be known with certainty.

200 Randolph appointed regent.

After the death of Robert, the administration was assumed by Randolph, in consequence of an act passed in 1318, by which he was appointed regent in case of the king's death. In his new character he behaved himself in a most exemplary manner; and by impartially discharging the duties of his station, and rigidly administering justice, he secured the public tranquillity in the most perfect manner. A severe exercise of justice was now rendered not only necessary, but indispensable.

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201 His excellent administration.

During a long course of war, the common people had been accustomed to plunder and bloodshed; and having now no English enemies to employ them, they robbed and murdered one another. The methods by which Randolph repressed these crimes were much the same with those which have been adopted in latter times; for he made the counties liable for the several robberies committed within their bounds. He even ordered the farmers and labourers not to house the tools employed by them in agriculture during the night-time, that the sheriff's officers might be the more vigilant in securing them. He gave orders for severely punishing all vagabonds, and obliged them to work for their livelihood; making proclamation, that no man should be admitted into a town or borough who could not earn his bread by his labour. These regulations were attended with the most salutary effects. A fellow who had secreted his own plough-irons, pretending that they were stolen, being detected by the sheriff's officers, was instantly hanged. A certain man having killed a priest, went to Rome, and obtained absolution from the pope; after which he boldly returned to Scotland. Randolph ordered him to be tried, and, on his conviction, to be executed: "Because," said he, "although the pope may grant absolution from the spiritual consequences of sin, he cannot screen offenders from civil punishment."

202 Douglas sets out for the Holy Land with King Robert's heart.

King Robert, just before his death, had desired that his heart might be deposited in our Saviour's sepulchre at Jerusalem; and on this errand the great commander Douglas was employed, who set sail in June 1330 with a numerous and splendid retinue. He anchored off Sluys in Flanders, the great emporium of the low countries, where he expected to find companions in his pilgrimage; but learning that Alphonsus XI. the young king of Leon and Castile, was engaged in a war with Osmyn the Moor, he could not resist the temptation of fighting against the enemies of Christianity. He met with an honourable reception at the court of Spain, and readily obtained leave to enter into what was thought the common cause of Christianity. The Spaniards first came in sight of their enemy near Theba, a castle on the frontiers of Andalusia, towards the kingdom of Granada. The Moors were defeated; but Douglas giving way to his impetuous valour, pursued the enemy too eagerly, and throwing among them the casket which contained the heart of his sovereign, cried out, "Now pass thou onward as thou wert wont; Douglas will follow thee or die." The fugitives rallied and surrounded Douglas; who, with a few of his followers, was killed in attempting to rescue Sir Walter St Clair of Roslin. His body was brought back to Scotland, and interred in the church of Douglas. His countrymen perpetuated his memory by bestowing upon him the epithet of *the good Sir James Douglas*. He was one of the greatest commanders of the age; and is said to have been engaged in 70 battles, 57 of which he gained, and was defeated in 13.—Of him it is reported, that meeting with an officer at the court of Alphonsus, who had his face quite disfigured with scars, the latter said to him, "It astonishes me, that you, who are said to have seen so much service, should have no marks of wounds on your face" "Thank heaven," answered Douglas, "I had always an arm to protect my face."

203 Killed by the Moors in Spain.

204 Edward Baliol claims the crown of Scotland.

In 1331, Edward Baliol began to renew his pretensions to the crown of Scotland, about the same time that David II. and his consort Johanna were crowned at Scone; which ceremony was performed on the 24th of November. Some historians relate, that he was excited to this attempt by one Twynham Lowrison, a person who had been excommunicated for refusing to do penance for adultery, and afterwards was obliged to fly on account of his having way-laid the official, beat him, and extorted a sum of money from him. But however this may be, it is certain, that in this year differences began to arise with England, on the following account. It had been provided by an article of the treaty of Northampton, that "Thomas lord Wake of Ledel, Henry de Beaumont, called *earl of Buchan*, and Henry de Percy, should be restored to their estates, of which the king of Scots, by reason of the war between the two nations, had taken possession." This article had been executed with respect to Percy, but not to the other two; and though Edward had repeatedly complained of this neglect, he could not obtain any satisfaction (G).

The disinherited barons now resolved to invade Scotland, though their force consisted of no more than 3000 infantry,

(G) As this is an important period of history, we shall here transcribe the opinion of lord Hailes concerning the causes of this strange delay of executing an article seemingly of little importance where a nation was concerned. "By the treaty of Northampton", says he, "all the claims of the English barons to inheritances in Scotland were disregarded, excepting those of Henry de Percy, Thomas lord Wake of Ledel, and Henry de Beaumont. Percy procured satisfaction: but the others did not.

"Henry de Beaumont, in the reign of Edward II. had associated himself with the nobility against the D'Espensers, and on that account had suffered imprisonment and exile. He aided queen Isabella in the invasion which proved the cause of the deposition, captivity, and death of her husband. Although, under the administration of Mortimer, he had obtained a share in the partition of the spoils of the D'Espensers, he persisted in opposing the measures of the new favourite; and although his own interests were secured by the treaty of Northampton, he boldly exclaimed against the injustice done to the other barons by that treaty. He joined the princes of the blood-royal in their attempt to rescue the young king from the hands of Isabella and her minion, and place him in their own; and, on the failure of that ill-advised conspiracy, he again took refuge in foreign parts. It appears that lord Wake, having followed the political opinions of Henry de Beaumont, was involved in like calamities and disgrace. While the queen-dowager and Mortimer retained their influence, the claims of these two barons were altogether overlooked: But within forty-eight hours after the execution of Mortimer, a peremptory demand was made by Edward III. to have their inheritance restored.

"The demand was unexpected and alarming. Made at the very moment of the fall of Isabella and Mortimer, and

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infantry, and 400 men at arms. Edward would not permit them to enter Scotland by the usual way, as he himself did not yet choose openly to take part in their quarrel. For this reason they were obliged to take shipping, and landed at a place called *Ravenshare*, *Ravenspur*, or *Ravensburgh*, at the mouth of the Humber (H). Randolph, having intelligence of the English preparations, had marched an army to the frontiers of East Lothian; but, being afterwards informed of the naval armament, he marched northwards; but died at Musselburgh, six miles east of Edinburgh, on the 20th of July 1332. With him died the glory of Scotland. The earl of Marr, a man whose only merit consisted in his being related to the royal family, was chosen to succeed him in the regency.—Edward, in the mean time, fell upon a most curious expedient to show the justice of his cause. In March 1332, he had published a prohibition for any person to infringe the treaty of Northampton. The disinherited lords had been suffered to embark, expressly for the purpose of invading Scotland, after this prohibition was published. *After they were gone*, Henry de Percy was empowered to punish those who should presume to array themselves in contempt of his prohibition; and because he understood that the Scots were arming in order to repel those invaders whom Edward had indirectly sent against them, he empowered Henry de Percy to arm against them.

205 Randolph the regent dies.

206 Baliol lands at Kinghorn, and defeats the Scots.

On the 31st of July, Edward Baliol and his associates landed in the neighbourhood of Kinghorn, on the Forth; routed the earl of Fife, who opposed them; and marched next day to Dunfermline. Having then ordered his fleet to wait for him at the mouth of the Tay, he proceeded northwards, and encamped on the Miller's acre at Forteviot, with the river Earn in front. Nothing, however, could be more dangerous than his situation at present, and his destruction would have been inevitable. The earl of Marr was encamped with a numerous army on the opposite bank of the river Earn, in the neighbourhood of Duplin; and another, nearly as numerous, had advanced from the south, through the Lothians and Stirlingshire, and fixed its quarters at Auchterarder, eight miles to the west of Forteviot. Historians differ as to the number of the two armies. Fordun says, that the regent had with him 30,000 men, and the earl of March as many; and that Baliol had between 500 and 600 men at arms, that is, horsemen completely armed. Hemingford reckons each of the Scots armies at 40,000, and Baliol's at 500 armed men. Knyghton says, that Baliol, when he landed in Fife, had 300 armed men, and 3000 more of different sorts; but that he had in all only 2500 men in his camp at Earn. In this desperate situation, the English general formed a design of attacking the Scots in their camp. They were directed to a ford by Andrew Murray of Tullibardine. The Scots kept no watch, but abandoned themselves to intemperance and riotous mirth; while their enemies, led by Alexander Moubray, crossed the river at midnight. They ascended a rising ground, came unperceived on the right flank of the Scottish army, and made a dreadful slaughter. At the first attack, young Randolph hasted with 300 men at arms to oppose the enemy; and being seconded by Murdoch earl of Menteith, Alexander Fraser, and Robert Bruce natural son to the late king, he gave a check to the English, and maintained the combat on equal terms. But now the regent himself, along with the whole multitude, rushed forward to battle without the least order: so that while the hindmost pressed on, the foremost were thrown down, trodden upon, and suffocated. The slaughter lasted many hours, and the remains of this vast army were utterly dispersed. Many men of eminence were killed; among whom were Donald earl of Marr, author of the whole catastrophe; Thomas earl of Moray, Murdoch earl of Menteith, Robert earl of Carrick, Alex-

207 Is in the utmost danger in the neighbourhood of Duplin.

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and in behalf of men who had loudly protested against the treaty of Northampton, it indicated a total and perilous change in the system of the English.

"Randolph, of late years, had beheld extraordinary vicissitudes in England. The D'Espensers alternately persecuted and triumphant, and at length abased in the dust: The fugitive Mortimer elevated to supreme authority, victorious over the princes of the bloody-royal, and then dragged to a gibbet. Hence it was natural for Randolph to wish, and even to look, for some new revolution, which might prove more favourable to the Scottish interests. Meanwhile, with great reason and good policy, he delayed the restitution of the inheritances claimed under the treaty of Northampton, in behalf of the avowed opposers of that treaty.

"Besides, it was necessary for Randolph to be assured that the English, while they urged the performance of one article of that treaty, did, on their part, sincerely purpose to perform its more important articles, by continuing to acknowledge the succession in the house of Bruce, and the independency of the Scottish nation.

"Of this, however, there was much reason to doubt. For the English king had taken Baliol under his protection, and had granted him a passport to come into England, with permission to reside there during a whole year, (10th October 1330). These things had no friendly or pacific appearance.

"Be this as it will, the event too fatally justified the apprehensions of Randolph; for, while Edward III. was demanding restitution of the estates reserved by the treaty of Northampton, his subjects were arming in violation of that treaty.

"It is remarkable, that, on the 24th March 1331-2, Edward appears to have known of the hostile association of the disinherited barons. His words are, 'Quia ex relatu accepimus plurimorum, quod diversi homines de regno nostro, et alii (meaning Baliol and his attendants), pacem inter nos, et Robertum de Brus, nuper Regem Scotorum, initam et confirmatam infringere machinantes, diversas congregationes hominum ad arma indies faciunt, et, *per marchias regni nostri, dictam terram* Scotiæ, *ad eam modo guerrino impugnandum, ingredi intendunt*;' *Foedera*, T. iv. p. 511. And yet, on the 22d April following, he demanded restitution of the inheritance of lord Wake, one of the barons in arms;" *Foedera*, T. iv. p. 518.

(H) This place does not now exist; having been overwhelmed by the sea many centuries ago.

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Alexander Fraſer, and Robert Bruce. The ſlaughter of the infantry and of the men at arms was very great; the moſt probable accounts make it 2000 men at arms, and upwards of 13,000 common ſoldiers. The loſs of the Engliſh was inconſiderable.

208 arther ıccefs of aliol.

The day after this victory, Baliol took poſſeſſion of Perth; and, apprehending an attack from the earl of March, cauſed the ditch to be cleared, and the town to be fortified with palliſadoes. The firſt information which the earl received of this dreadful defeat was from a common ſoldier, who fled from the place mortally wounded. When this poor wretch came up, he had time to do no more than to ſhow his wounds; after which he fell down, and expired. On his arrival at the field of battle, he found a dreadful confirmation of the intelligence given by the ſoldier; but inſtead of taking his meaſures with any prudence, he and his men hurried on headlong to Perth, actuated only by a blind impulſe to revenge. At firſt they deſigned to aſſault the place; but their hearts failing them, they next determined to reduce it by famine. This, however, could not be done unleſs the Scots were maſters at ſea. One John Crab, a Flemiſh engineer (who had diſtinguiſhed himſelf by deſtroying the famous engine called the *ſow* at the ſiege of Berwick), had continued for many years to annoy the Engliſh on the eaſtern coaſts. After the blockade of Perth was formed, he came with ten veſſels to the mouth of the Tay, where the Engliſh fleet was, and took the ſhip belonging to Henry de Beaumont; but ſoon after all his ten veſſels were burnt by the Engliſh in a general engagement. After this the blockade of Perth was raiſed, the earl of March diſbanded his army, and Edward Baliol was crowned king of Scotland at Scone, on the 24th of September 1332.

209 e is owned ng of cotland.

The new monarch was no ſooner put in poſſeſſion of the kingdom, than he left Perth in the hands of the earl of Fife, while he himſelf repaired to the ſouthern parts of the kingdom. But the party of king David was far from being extinguiſhed. Baliol was ſcarce gone, when the town of Perth was ſurpriſed, and its fortifications razed, by James Fraſer, Simon Fraſer, and Robert Keith. The earl of Fife was made priſoner, with his family and vaſſals. Andrew Murray of Tullibardine, who had directed the Engliſh to a ford on the river Earn, was put to death as a traitor. Such of the Scots as ſtill adhered to the intereſt of their infant prince, choſe Sir Andrew Murray of Bothwell regent. He was a brave and active man, but had not as yet ſufficient force to attempt any thing conſiderable.

210 is thame- l behavi- ur.

In the mean time, Baliol behaved in a moſt ſcandalous manner. At Roxburgh, he made a ſolemn ſurrender of the liberties of Scotland; acknowledged Edward for his liege-lord; and, as if this had not been ſufficient, he became bound to put him in poſſeſſion of the town, caſtle, and territory of Berwick, and of other lands on the marches, extending in all to the yearly value of 2000 l. "on account," as the inſtrument bears, "of the great honour and emoluments which we have procured through the *ſufferance* of our lord the king, and by the powerful and acceptable aid which we have received from his good ſubjects." He alſo proffered to marry the princeſs Johanna, whom he conſidered as only betrothed to David Bruce, and to add 500 l. to her jointure; and this under the penalty of 10,000 l. to be appropriated as a portion to the young lady, or otherwiſe diſpoſed of for her behoof. He further engaged to provide for the maintenance of David Bruce as the king of England ſhould adviſe; and, laſtly, he became bound to ſerve Edward in all his wars, excepting in England, Wales, and Ireland, for the ſpace of a year together, with 200 men at arms, and all at his own charges; and he bound his ſucceſſors to perform the like ſervice with 100 men at arms. But afterwards Edward having engaged to maintain him on the throne of Scotland, Baliol bound himſelf to ſerve him in all his wars whatever.

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Though the greateſt part of the nation ſubmitted to this ſhameful treaty, it rouſed the indignation of thoſe who wiſhed well to the liberties of their country. John, the ſecond ſon of Randolph, now earl of Moray by the death of his brother; Archibald, the youngeſt brother of the renowned Douglas; together with Simon Fraſer, aſſembled a body of horſemen at Moffat in Annandale; and, ſuddenly traverſing the country, aſſaulted Baliol unexpectedly at Annan. His brother Henry made a gallant reſiſtance for ſome time; but was at laſt overpowered with numbers, and killed, together with ſeveral other perſons of diſtinction. Baliol himſelf eſcaped almoſt naked, with ſcarce a ſingle attendant, and fled to England. After his departure, the Scots began to make depredations on the Engliſh frontiers. Edward iſſued a proclamation, in which he ſolemnly averred, that the Scots, by their hoſtile depredations, had violated the peace of Northampton. Baliol, in the mean time, being joined by ſome Engliſh barons, returned to Scotland; took and burnt a caſtle where Robert de Colville commanded; and, eſtabliſhing his quarters in the neighbourhood of Roxburgh, began to make preparations for beſieging Berwick. Juſt after his arrival, Archibald Douglas, with 3000 men, invaded England by the weſtern marches, plundered the country, and carried off much booty; in revenge for which, Sir Anthony de Lucy made an inroad into Scotland, defeated and took priſoner Sir William Douglas, celebrated in hiſtory by the appellation of *the knight of Liddeſdale*, whom Edward cauſed to be put in irons. About the ſame time, Sir Andrew Murray the regent attacked Baliol, with a view to diſcomfit him before the reinforcements which he expected out of England could arrive. A ſharp conflict enſued at Roxburgh, in which the regent, attempting to reſcue a ſoldier, was taken priſoner: and thus Scotland was at once deprived of its two ableſt commanders.

211 Baliol ſurpriſed, and driven out of Scotland.

212 The Scots regent defeated and taken priſoner.

Archibald Douglas was now declared regent; and Edward prepared to invade Scotland, in order to take vengeance on its inhabitants, as he ſaid, for the wrongs they had done, and to ſeek ſuch redreſs as might ſeem good to himſelf. He ordered poſſeſſion to be taken of the iſle of Man in his own name; and ſoon after made it over to Sir William de Montague, who had ſome claim of inheritance in it. The chief deſign of Edward in this expedition, however, was to obtain poſſeſſion of the town of Berwick, which had been already ceded to him by Baliol. This appeared to the Scots a place of no leſs importance than it did to Edward; and therefore they took all the precautions in their power to prevent the loſs of it. The earl of March was appointed to command the caſtle, and Sir William

213 Berwick beſieged by the Engliſh.

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William Keith the town. The Scots made an obstinate defence; yet it was evident that they must soon have yielded if they had not been relieved. At length the regent, with a numerous army, appeared in the neighbourhood. He endeavoured to convey succours into the town, or to provoke the enemies to quit the advantage of the ground, and engage in battle. But all his efforts were in vain; the English obstructed every passage, and stood on the defensive.

214 The Scots invade Northumberland in vain.

The regent then entered Northumberland, wasted the country, and even assaulted Bamborough-castle, where Philippa the young queen of England had her residence. He fondly imagined that Edward III. would have abandoned the siege of Berwick, after the example of his father, in circumstances not dissimilar. Edward nevertheless persevered in his enterprise.

During a general assault, the town was set on fire, and in a great measure consumed. The inhabitants having experienced the evils of a siege, and dreading the worse evils of a storm, implored the earl of March and Sir William Keith to seek terms of capitulation. A truce was obtained; and it was agreed, that the town and castle should be delivered up on terms fair and honourable, unless succours arrived before the hour of vespers on the 19th July.

It was specially provided, "that Berwick should be held as relieved, in case 200 men at arms, in a body, should force their passage into the town."

By the treaty, Sir William Keith was permitted to have an interview with the regent. He found him with his army in Northumberland; urged the necessity of his return; and showed him, that Berwick, if not instantly relieved, was lost for ever. Persuaded by his importunities, the regent resolved to combat the English, and either to save Berwick or lose the kingdom.

215 The Scots resolve to come to an engagement.

On the afternoon of the 19th of July, the regent prepared for battle. He divided his army into four bodies. The first was led by John earl of Moray, the son of Randolph; but as he was young and inexperienced in war, James and Simon Fraser, soldiers of approved reputation, were joined with him in the command. The second body was led by the steward of Scotland, a youth of 16, under the inspection of his uncle Sir James Stewart of Rosyth. The third body was led by the regent himself, having with him the earl of Carrick and other barons of eminence. The fourth body, or reserve, appears to have been led by Hugh earl of Ross.

The numbers of the Scottish army on that day are variously reported by historians. The continuator of Hemingford, an author of that age, and Knyghton, who lived in the succeeding age, ascertain their numbers with more precision than is generally required in historical facts.

The continuator of Hemingford minutely records the numbers and arrangement of the Scottish army. He says, that, besides earls and other lords or great barons, there were 55 knights, 1100 men at arms, and 13,500 of the commons lightly armed, amounting in all to 14,655.

With him Knyghton appears to concur, when his narrative is cleared from the errors of ignorant or careless transcribers.

It is probable, however, that the servants who tended the horses of persons of distinction and of the men at arms, and the useless followers of the camp, were more numerous than the actual combatants.

The English were advantageously posted on a rising ground at Halydon, with a marshy hollow in their front. Of their particular disposition we are not informed, further than that Baliol had the command of one of the wings.

It had been provided by the treaty of capitulation, "That Berwick should be considered as relieved, in case 200 men at arms forced their passage into the town." This the Scottish men at arms attempted; but Edward, aware of their purpose, opposed them in person, and repulsed them with great slaughter. The Scottish army rushed on to a general attack; but they had to descend into the marshy hollow before mounting the eminences of Halydon. After having struggled with the difficulties of the ground, and after having been incessantly galled by the English archers, they reached the enemy. Although fatigued and disordered in their ranks, they fought as it became men who had conquered under the banners of Robert Bruce. The English, with equal valour, had great advantages of situation, and were better disciplined than their antagonists. The earl of Ross led the reserve to attack in flank that wing where Baliol commanded; but he was repulsed and slain. There fell with him Kenneth earl of Sutherland, and Murdoch earl of Menteith.

216 Battle of Halydon.

In the other parts of the field, the events were equally disastrous. The regent received a mortal wound, and the Scots everywhere gave way. In the field, and during a pursuit for many miles, the number of slain and prisoners was so great, that few of the Scottish army escaped.

217 The Scots defeated, and the regent killed.

Besides the earls of Ross, Sutherland, and Menteith, there were among the slain Malcolm earl of Lenox, an aged baron; he had been one of the foremost to repair to the standard of Robert Bruce, and his last exertions were for his country: Alexander Bruce earl of Carrick, who atoned for the short defection from the family of his benefactor; John Campbell earl of Athole, nephew of the late king; James Fraser, and Simon Fraser; John de Graham, Alexander de Lindesay, Alan Stewart, and many other persons of eminent rank.

The Steward had two uncles, John and James. John was killed, and James mortally wounded and made prisoner (1).

The regent, mortally wounded, and abandoned on the field of battle, only lived to see his army discomfited and himself a prisoner.

This victory was obtained with very inconsiderable loss.

(1) *Fordun*, l. xiii. c. 28. relates, that Sir James Stewart was slain; the English historians, that he was mortally wounded and made prisoner. It may be remarked, that at Halydon two Stewarts fought under the banner of their chiefs; the one Alan of Dreghorn, the paternal ancestor of Charles I. and the other James of Rosyth, the paternal ancestor of Oliver Cromwell.

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loss. It is related by the English historians, that, on the side of their countrymen, there were killed one knight, one esquire, and 12 foot-soldiers. Nor will this appear altogether incredible, when we remember, that the English ranks remained unbroken, and that their archers, at a secure distance, incessantly annoyed the Scottish infantry.

218 Berwick surrenders, and almost all Scotland submits.

According to capitulation, the town and castle of Berwick surrendered. The English king took twelve hostages, for securing the fidelity of the citizens of Berwick.

Thus was the whole of Scotland reduced under the subjection of Baliol, excepting a few fortresses; so that it became necessary to provide for the safety of the young king and queen. Accordingly, they were conveyed to France, where they were honourably entertained. Meanwhile, Baliol employed himself in making new concessions to his liege-lord Edward; and in 1334 the work of submission was completed by a solemn instrument drawn up by Baliol, in which he surrendered great part of the Scottish dominions, to be for ever annexed to the crown of England. In this instrument Baliol said, that "he had formerly become bound to make a grant to Edward of lands on the marches, to the amount of *two thousand-pound lands*; that the Scottish parliament had ratified his obligation; and that he had accordingly surrendered Berwick and its territory; and now, for completely discharging his obligation, he made an absolute surrender to the English crown of the forests of Jedburgh, Selkirk, and Ettrick; of the counties of Roxburgh, Peebles, and Dumfries; together with the county of Edinburgh, and the constabularies of Linlithgow and Haddington." This extraordinary surrender was made with so much precipitation, that Baliol forgot to except his own private estate out of it. This, however, was generously restored to him by Edward; who proclaimed, that, "having already received satisfaction in full, he had too much reverence for God, justice, and good faith to man, to allow the cession to be prejudicial to the private rights of the king of Scots." At the same time, Baliol presented himself before his liege-lord; did homage, and swore fealty, "for the whole kingdom of Scotland and the isles adjacent."

219 Mean submissions of Baliol.

220 A quarrel among the English disinherited lords.

A quarrel now arose among the disinherited lords, to whom this revolution had been owing, which produced the worst consequences to the interest of Baliol. The brother of Alexander de Moubray died, leaving daughters, but no issue-male. Moubray having claimed a preference to the daughters of his brother, Baliol countenanced his suit, and, as it appears, put him in possession of the inheritance. Henry de Beaumont earl of Buchan, and David de Strathbolgie or Hastings, earl of Athol, espoused the cause of the heirs-general; but perceiving that their solicitations were not heard, they left the court in disgust, and retired to their castles about the end of August 1334. Baliol soon perceived his error in offending these two powerful lords; and in order to regain their favour, dismissed Moubray, and conferred on David de Strathbolgie the whole estates of the young Steward of Scotland. Thus he alienated the affections of Moubray, and added to the power of the earl of Athol, who was by far too powerful before.

About this time Sir Andrew Murray of Bothwell, having regained his freedom, began to assemble the friends of liberty, and was immediately joined by Moubray. In a moment every thing was in confusion. Geffrey de Moubray, governor of Roxburgh, revolted; Henry de Beaumont was besieged in his castle of Dundarg by Murray and Moubray, and forced to surrender, but obtained liberty to depart into England. Richard Talbot, endeavouring to pass into England with a body of troops, was defeated and taken prisoner by Sir William Keith of Galston. The Steward of Scotland, who had lain concealed in the isle of Bute ever since the battle of Halidon, now passed over to the castle of Dunbarton, which was one of the few forts remaining to king David. With the assistance of Dougal Campbell of Lochow, he made himself master of the castle of Dunoon in Cowal. His tenants of the isle of Bute attacked and slew Alan de Lile the governor, and presented his head to their master. John the son of Gilbert, governor of the castle of Bute, was made prisoner in the action. He ordered the garrison to surrender, and attached himself to the Scottish interest. Encouraged by these successes, the Steward entered his ancient inheritance of Renfrew, and compelled the inhabitants to acknowledge the sovereignty of David. Godfrey de Ross, the governor of Ayrshire, submitted to the Steward. The earl of Moray returned from France, whither he had fled after the battle of Halidon, and was acknowledged regent along with the Steward. The earl, having raised a body of troops, marched against the earl of Athol, compelled him to retire into Lochaber, and at last to surrender; after which he embraced the party of the conquerors. Baliol was now obliged to retire again into England, in order to solicit assistance from Edward; and this was readily granted. Edward himself took the field at a very unfavourable season for military enterprises. His army was divided into two parts. With the one Edward wasted Lothian, while Baliol did the like in Annandale with the other; and, in the mean time, Patrick earl of March, notwithstanding the unfavourable posture of affairs, renounced the allegiance he had sworn to England. His motive for this was, that though the kings of England had maintained him in an independency dangerous to Scotland, he was assured that they would never permit him to become formidable in a country which they themselves possessed.

221 Baliol's party every where defeated.

222 He retires into England, and obtains the assistance of Edward.

223 Loch leven castle unsuccessfully besieged by the English.

The year 1335 is remarkable for the siege of Lochleven castle by the English, under John de Strivelin. This fort was built on a small island, and very difficult of access. The English commander erected a fort in the cemetery of Kinross; and at the lower end of the lake, from whence runs the stream called *the Water of Leven*, he raised a strong and lofty bulwark, by means of which he hoped to lay the island under water, and oblige the garrison to surrender. But four of the Scots soldiers, having found means to approach the bulwark undiscovered, pierced it so dexterously, that the waters, rushing out with a prodigious force, overflowed part of the English camp; and the garrison, sallying out during the confusion occasioned by this unexpected inundation, stormed and plundered the fort at Kinross. At this time the English commander, with many of his soldiers, happened to be absent at Dunfermline, celebrating the festival of St Margaret. On his return, he swore that he would never desist till he

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he had taken the place, and put the garrison to the sword; however, his utmost efforts were at last baffled, and he was obliged, notwithstanding his oath, to desist.

In the mean time, the regents assembled a parliament at Dairsy, near Cupar in Fife; but no plan of defence could be fallen upon, by reason of the animosities and factions which prevailed among the barons. Through the mediation of the French, some terms of peace were proposed; but being rejected by the English, Edward again invaded Scotland, cruelly ravaging the country with one army, while Baliol and the earl of Warrene did the same with another. Soon after this invasion, count Guy of Namur landed at Berwick with a considerable number of men-at-arms in the service of the English. He advanced to the neighbourhood of Edinburgh; but was defeated and taken prisoner by the earls of March and Moray, and Sir Alexander Ramsay. In this engagement, one Richard Shaw, a Scottish esquire, was singled out by a combatant in the army of count Guy, and both pierced each other with their spears; the stranger being stripped, was discovered to be a woman. The earl of Moray treated Guy with the greatest respect, not only allowing him and the remainder of his troops to depart from Scotland without molestation, but even attending him to the borders, accompanied by William Douglas and his brother James. On his return, William de Pressen, warden of the castle and forest of Jedburgh, attacked and defeated his party; James Douglas was killed, the earl himself taken prisoner, and carried into England.

224 Count Guy of Namur defeated and taken prisoner.

225 The Scots regent taken prisoner, in consequence of which a shameful treaty is concluded with England.

Thus was the Scottish nation once more reduced to the brink of ruin. Alexander de Mowbray, Geffrey de Mowbray, and some others, pretending powers from "the earl of Athol and Robert the Steward of Scotland," concluded a treaty with Edward at Perth; the substance of which was, that all the Scots should receive pardon, and have their fees, lands, and offices restored, excepting those who by *common assent* in parliament should be excluded. The liberties of the church and the ancient laws and usages of Scotland were to remain in full force. All offices were to be filled with Scotsmen, excepting that the king should appoint whom he pleased within his regalities.

226 The earl of Athol defeated and killed.

The earl of Athol now began to persecute with the utmost fury those who wished well to the cause of Scotland. With 3000 men he besieged the castle of Kildrommey, which had hitherto been the great refuge of king David's party. Sir Andrew Murray of Bothwell resolved at all events to attempt the rescue of his wife and family, who were shut up in this castle. With 1100 men he surprised Athol in the forest of Kilblain. The earl's men, seized with a panic, fled and dispersed themselves; on which their commander, refusing to accept of quarter, was killed. Sir Andrew Murray then assembled a parliament at Dunfermline, where he was immediately appointed regent.

227 Edward again invades Scotland.

In 1336, the king of England perceiving that the Scots were taken under the patronage of France, resolved to invade their country, and crush them at once before they could have any assistance from their new allies. In this expedition he penetrated as far as Inverness; but the Scots, commanded by Sir Andrew Murray, avoided coming to a general action; so that Edward could not effect any thing of consequence. The inhabitants of Aberdeen attacked one Thomas Rosheme, who had landed at Dunottar. They were defeated; but Rosheme fell in the action. Edward chastised the vanquished severely for their temerity, and laid the town in ashes. He then began to repair the castles whose fortifications had been demolished by king Robert. He put in a state of defence the castles of Dunottar, Kinclevin, Lawrieston, Stirling, Bothwell, Edinburgh, and Roxburgh; greatly augmented the fortifications of Perth, and left a considerable body of troops in the place. The Scots began to reduce these castles as soon as Edward was departed; and in 1337, under Sir Andrew Murray, invaded Cumberland. No great exploits, however, were now performed on either side. Edward being employed in preparations for invading France, had little leisure to attend to the affairs of Scotland; and the Scots, divided among themselves, and destitute of those leaders under whom they had acquired so much glory, could not now annoy their enemies as formerly. The most remarkable transaction was the siege of the castle of Dunbar, belonging to the earl of March. The English commander was the earl of Salisbury. The earl of March was absent; but his wife, the daughter of Randolph, from her complexion commonly called *Black Agnes*, undertook to defend it in her husband's absence. The English again employed that huge machine called *a sow*, formerly mentioned in our account of the siege of Berwick: it met with the same fate now as at that time; an huge stone, let fall upon it from the top of the walls, crushed it to pieces. The English, baffled in every attack, turned the siege into a blockade; but Sir Alexander Ramsay having found means to enter it with 40 resolute men, the garrison made a sally, and cut in pieces the advanced guard of the enemy. The English, disheartened by so many misfortunes, abandoned the enterprise.

228 Dunbar castle unsuccessfully besieged by the English.

229 Exploits of Robert the Steward.

In 1338, Sir Andrew Murray the regent died, and was succeeded in his office by Robert the Steward of Scotland. In 1339 he reduced the town of Perth and the castle of Stirling; and gained over to the Scottish interest William Bullock, governor of the castle of Coupar: after which, having expelled the enemy from every post to the northward of the Forth, he employed himself in settling the affairs of the nation as well as he could.

230 Edinburgh castle surprised by Sir William Bullock.

In 1341, the castle of Edinburgh was surprised by a device of Sir William Bullock. According to his appointment, one Walter Currie of Dundee privately received into his ship the knight of Liddesdale, with William Fraser, Joachim of Kinbuck, and 200 resolute men. Currie cast anchor in Leith road, pretending to be an English shipmaster, who had a cargo of wine and provisions, with which he proposed to furnish the commander of the castle. His barrels and hampers were brought to the castle-gate, and suddenly thrown down in such a manner as to obstruct the shutting of it. Currie and his men then slew the centinels; and the knight of Liddesdale, with a party who lurked in the neighbourhood, rushed in, overpowered the garrison, and made themselves masters of the place.—On the 4th of March this year, the king and queen arrived from France, and landed at Inverbervie in Kincardineshire.

231 King David arrives in Scotland.

In 1342, Sir Alexander Ramsay took the strong fortress of Roxburgh; for which important service the king bestowed on him the charge of sheriff of Teviotdale, at that

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that time held by William Douglas knight of Liddesdale. The king's liberality proved fatal to Ramsay: for from that time Douglas became his implacable and inveterate enemy; and having, after a pretended reconciliation, unexpectedly surprised him with three of his friends, he put them instantly to death, carrying off Ramsay himself to his castle of the Hermitage, where he caused him to be starved to death in a most barbarous manner. The unhappy man was confined in a room, over which was an heap of wheat; a few grains of which were let fall every day through a hole, not as many as would support life, but as would protract it for a time, and make him longer sensible of the agonies of hunger; and in this miserable situation he survived 17 days. About the same time Sir William Bullock was put to death by Douglas in a similar manner; nor was King David at that time in a capacity to punish such atrocious cruelties committed by so powerful a subject.

232 Miserable end of Alexander Ramsay and Sir William Bullock.

233 David invades England, and behaves with the utmost cruelty.

In the mean time, David having raised a powerful army, prepared to take a severe revenge of the English, from whom he had suffered so much. Edward was at that time in France, but commanded Baliol to raise all the militia beyond the Trent: which order, however, produced but little effect; so much was this mean-spirited prince despised by the English. David invaded Northumberland without opposition, and ravaged the country; but was obliged to raise the siege of Newcastle, which was commanded by Sir John Nevil, an excellent officer. David, exasperated at this repulse, entered the bishopric of Durham, which he ravaged in the most cruel manner. However, on the approach of Edward with a powerful army, the Scots thought proper to retire; and a two years truce was agreed upon.

234 Other invasions.

This pacification was but short-lived. In 1345 the Scots again prepared to invade England, while Edward took all necessary measures for opposing them: however, this year the Scots were successful, ravaging Westmoreland, and burning several towns. The year ended with a new truce between the two nations; and hostilities were not renewed till 1346, when David entered England with an army of 50,000 men. His first exploit was the taking of the fortress of Liddel, and massacring all whom he found in it. The commander, Sir Walter Selby, capitulated with a Scots knight for his life; but the bargain being disapproved of by David, he ordered two of Selby's sons to be strangled in his presence, and then the father's head to be cut off. From thence the Scots marched to Lancroft, which they plundered; then passing into Northumberland, they pillaged the priory of Hexham, but spared the town, that it might serve as a magazine. Three other towns, Corbridge, Durham, and Darlington, were spared for the same reason. In his march to Durham, it is said that he would have made the county a desert, had not some of the monks paid him a contribution of a thousand pounds to spare their estates: however, according to Knyghton, every Englishman who fell into David's hands was put to death, unless he could redeem his life by paying threepence.

235 Monstrous cruelty of David.

To put a stop to the cruelties of this barbarous invader, the queen of England, in her husband's absence, assembled a powerful army, which was divided into four bodies; the first commanded by Lord Henry Percy; the second by the archbishop of York; the third by the bishop of Lincoln, the lord Moubray, and Sir Thomas Rokeby; and the fourth and principal division was headed by Edward Baliol.—The king of Scotland headed a chosen battalion, composed of the flower of his nobility, and the auxiliaries with which he had been supplied by France. The high steward of Scotland headed the second line; and the third was commanded by the earls of Moray and Douglas. While the English were approaching, Lord Douglas and Sir David Graham skirmished with them, but were defeated with the loss of 500 of their men; which seemed an omen of the disaster that was about to ensue. The general engagement began between the archers on both sides; but the English being much superior in the use of the bow, the steward of Scotland advanced to the relief of his countrymen. The English archers, unable to bear his attack, fell back upon Lord Henry Percy's division, which was thus put in confusion, and would have been totally defeated, had not Baliol advanced to their relief with a body of 4000 horse. The steward was then obliged to retire; by which means the flank of that division commanded by David, and which was then engaged with another line of the English, was left exposed to an attack. Baliol perceived the advantage; and, without pursuing the steward, attacked the king's division, which was immediately cut in pieces or dispersed. David was left with about 80 noblemen and gentlemen, but still maintained the fight with obstinacy; nor would he yield even when wounded in the head with an arrow, expecting every moment to be relieved by the steward and that line of his army which was still entire under the Lords Moray and Douglas. At last finding himself totally overpowered, he attempted to retreat, but was overtaken by a party under one John Copeland. This captain, endeavouring to seize the king, had two of his teeth struck out by a blow of his gauntlet; but at last, finding it in vain to resist, the king was obliged to give up his sword and surrender himself a prisoner.—After he was taken, Baliol attacked and totally routed that division of the Scottish army which had hitherto remained entire under the Lords Moray and Douglas. In this battle the Scots lost a great number of their nobility, and 15,000 common soldiers. Many persons of the first distinction were also taken along with the king; and had it not been that the escape of the Scots was favoured by the avarice of the English soldiers, who neglected the pursuit in order to plunder, scarce a single Scotsman would have returned.

236 The battle of Durham.

237 The Scots defeated, and their king taken prisoner.

King David, after this unfortunate battle, was carried to the castle of Bamborough, where he was kept with so much privacy, that for some time it was not known where he was, or that he had been taken prisoner. As soon as the truth was known, the queen of England demanded the royal prisoner from Copeland; but the latter positively refused to part with him even to the queen, unless she could produce an order to that purpose under Edward's hand and seal. This resolute behaviour was resented by the queen, and a complaint made to the king; in consequence of which Copeland was summoned to appear before Edward, after having resigned David to the custody of Lord Nevil. The English monarch, at that time in France, approved of all that he had done, rewarded him with 500 l. a year, and sent him back to England with the honour of

238 Account of king David after the battle.

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knighthood. David was then escorted by Copeland, attended, it is said, by 20,000 men, from the castle of Ogle in Northumberland, till the Lord Nevil, by indenture, delivered him into the hands of Sir Thomas Rokeby sheriff of Yorkshire. In the same pompous manner he was conducted all the way to London, which he entered on a black courser. He was received in the capital with the greatest solemnity by the lord-mayor and other magistrates, the city-companies under arms lining all the streets through which he passed, the houses loaded with spectators, who expressed a generous concern for his captivity. Being arrived at the Tower, he was delivered, by indenture likewise, to the custody of the constable, the Lord John Darcy, on the 2d of January 1347.

239 Baliol makes another attempt on the crown of Scotland.

Baliol now, encouraged by the misfortune of his rival, made an effort once more to establish himself on the throne of Scotland; and before the end of the year reduced the castles of Hermitage and Roxburgh, the forest of Ettric, the Merse, with the counties of Annandale, Teviotdale, and Tweeddale. The Scots continued faithful to the cause of their king, notwithstanding his misfortune, and chose the Steward for the guardian of the kingdom. He behaved with a prudence equal to the high station he filled: nevertheless the progress of Baliol was so rapid, that it is scarcely probable he could have maintained his ground, had not Edward again consented to a truce; which, however, seems to have been ill observed on the part of the Scots. In fact, though both Scots and English historians are silent as to particulars, we find, that about the end of the year 1348, all Scotland was recovered out of the hands of the English; excepting Berwick, Roxburgh, Hermitage, and Lanric, which was part of Baliol's hereditary estate, and defended by him with an army. The Scots historians inform us, that the English, in revenge for the damages done to their country by the breach of the peace, proclaimed a tournament and other military exercises at Berwick, to which they invited the Scots; but in their way thither the latter fell into an ambuscade, and were all cut in pieces.

240 The Scots recover the greatest part of their country.

241 Scotland infested with a dreadful plague.

The years 1349 and 1350 were remarkable only for a dreadful plague which invaded Scotland, after having ravaged the continent of Europe. According to Fordun, one-third of the people of Scotland perished at this time. The patient's flesh swelled exceedingly, and he died in two days illness; but the mortality chiefly affected the middling and lower ranks of people. The same dreadful calamity continued throughout the years 1351 and 1352; occasioning a cessation of arms not only in Scotland, but throughout all Europe.

All this time King David remained a prisoner in England; for though several treaties had been proposed, they had hitherto come to nothing, because the English monarch insisted upon being indemnified for the ravages the Scots had committed in his territories. At last it was agreed, that the king of Scotland should be immediately set at liberty, on paying 90,000 merks for his ransom, by equal proportions, within the space of nine years: That 10,000 merks, being the first proportion, should be paid at the feast of Candlemas next to come, the second at Candlemas 1357, and so on till complete payment should be made of the whole: That, during the said space of nine years, there should be a truce between the two kingdoms: That 20 Scots gentlemen, of the best families in the kingdom, should remain in England as hostages and sureties for the said sum; and that, if any part thereof was not paid at the precise time appointed, then David should remain a prisoner in England till it was paid; or, if he was detained by any just cause, that the lord high steward, the Lord Douglas, John of the Isles, and others of the highest rank, should come and supply his place.

242 Terms proposed for release of the Scottish monarch.

These terms were rejected by the Scots nobility; and, in 1355, war was recommenced with England, at the instigation of France, who sent 40,000 crowns to Scotland as a supply for defraying the expences.

243 Rejected by the nobility, and war recommenced.

With this sum the guardian, having raised an army, once more took the field; but not before the English had destroyed the Lothians and Douglasdale. A battle was fought on Nisbit-moor: in which the English being drawn into an ambuscade, were totally defeated. The next attempt of the Scots was against the town of Berwick, which they designed to surprise by an escalade. They met, however, with such a vigorous resistance, that many persons of distinction were killed. However, the attack proved successful; but the acquisition was of no great importance, as the castle still held out. Edward, in the mean time, hearing of the loss of the town, hurried back from France to London. Here he staid but three days, and marched northward to raise the siege. He reached Durham on the 23d of December 1355, where he appointed all his military tenants to meet him on the 1st of January 1356. On the 14th of the same month he arrived before Berwick, which was instantly retaken; but the Scots were allowed to depart for their own country. The reduction of this place produced an extraordinary effect: for Baliol now perceiving that Edward meant not to establish him on the throne of Scotland, but to retain in his own possession as many places of that country as he could, came at last to the resolution of giving up to the king of England the whole of Scotland. This indeed was no more than a form, because at that time he was not possessed of the kingdom. However, the ceremony was performed at Roxburgh; and Baliol presented his crown and some earth and stones by way of investiture. Baliol in return was to have a revenue of 2000 pounds a-year; and as Edward was at the head of an excellent army, he had little doubt of being able to force the Scots to submit.

244 Berwick taken by the Scots.

245 Retaken by Edward.

246 Baliol resigns the kingdom of Scotland to Edward.

The affairs of Scotland were now in a very critical situation; and it was necessary to gain time. For this reason Edward was amused with a negociation; and to this he the more willingly listened, as he was at that time waiting for his fleet, from which he had great expectations. A little time, however, discovered the deceit. The Scots plainly told Edward, that they would die rather than submit to his demands; and he, in return, threatened a most dreadful revenge. His fleet in the mean time arrived in the Frith of Forth; the mariners destroyed and pillaged all that was within their reach, without sparing even the sacred edifices, carrying off the statues of the blessed virgin, loading the monks with chains, and committing every thing in those days called impiety and sacrilege. Edward had by this time marched as far as Haddington, but was obliged to receive provisions all the way from his fleet; for the Scots had desolated the country through which he passed. During his march his army was harassed, and his

247 Who makes a furious invasion.

Scotland.

248 Et is obliged to return without accomplishing any thing.

his foragers cut off, so that he was reduced to distress; and at last his fleet being totally destroyed by a storm, he was obliged to return to England without accomplishing any thing.

In the mean time the prince of Wales, who had been left by his father to carry on the war in France, defeated and took prisoner John king of France at the battle of Poictiers. In this battle were 3000 Scots, who had gone over as auxiliaries to the French monarch, and who suffered extremely. However, the success of Edward, instead of rendering him haughty, seemed to have a contrary effect; and, by the mediation of Pope Innocent, a truce for two years was concluded with France, in which the Scots were comprehended. During this interval, the ransom of the king of Scots was settled at 100,000 merks to be paid in ten years; for which 20 hostages were to be given as formerly. In consequence of this treaty, David at last obtained his liberty in 1358; and Edward laid aside all hopes of ever subduing Scotland. As for Baliol, he was now sunk in oblivion; and it is not known what became of him, or when he died.

249 David obtains his liberty.

250 Is embarrassed by the payment of his ransom.

David, though now restored to liberty, found himself greatly embarrassed with the payment of such a large sum as had been stipulated for his ransom; the kingdom of Scotland being then in a most miserable and exhausted situation. After sending his queen, and going into England himself, he could obtain no greater favour than a respite of a few months for the payment of the second moiety; so that he was at last constrained to ask assistance from France. This could scarcely be expected in the distressed situation of that kingdom; however, it was at last agreed, that 50,000 marks should be paid to Scotland, in case the Scots would consent to renew the war the following year. Neither party, however, kept their word; and David, being still greatly distressed about the remainder of his ransom, at last entered into a very extraordinary negociation with Edward, by which he consented that the king of England should be his successor to the throne of Scotland. But this negociation was defeated through the invincible hatred which the Scots bore to an English governor. David then, being entirely unable to discharge the remainder of his ransom, was obliged to enter into a new treaty; by which the kingdom of Scotland became indebted to Edward the sum of 100,000 pounds Sterling, to be paid by equal proportions within the space of 25 years, during which there should be a truce between the two nations.

251 Enters into a new treaty with Edward.

From this time we meet with little more of any moment in the reign of King David. After the death of his Queen Johanna, the sister of Edward, he married a Scots woman, of mean birth, named Margaret Logie; but by neither of his wives had he any children. Queen Margaret he divorced, on what pretence is not known; however, she left the kingdom, and complained personally to the pope, who treated her as David's lawful wife, and enjoined her husband to receive her as such under the most severe penalties. What effect these threats had on the king is not known; but it is certain that Margaret never returned to Scotland; and, on the 22d of February 1371, David himself died, leaving the kingdom to his nephew Robert Stewart, the first of that family who sat on the throne of Scotland (K).

252 He dies, and is succeeded by Robert Stewart.

Some

(K) Concerning the origin of the Stewart family, we have the following account by the Scots historians. Fleance, the son of the celebrated Banquo, after his father's murder by Macbeth, fled into Wales, where he had a son named *Walter*, by a princess of that country. After the restoration of Malcolm Canmore, this Walter returned to Scotland, where he was promoted to the high stewardship, a dignity held by service, and which intitled the possessor to all the privileges of a baron. Walter was now distinguished, from this office, by the title of *Walter the Stewart*, which descended to his posterity; and *Steward*, afterwards *Stewart*, or *Stuart*, became their surname.

On this subject Lord Hailes has the following remarks. "Our historians have recorded the atchievements of Walter the Stewart of Scotland in the reign of Malcolm III. He is said to have been the father of Alan, and the grandfather of that Walter who was indeed Stewart of Scotland in the reign of David I. and Malcolm IV. It may perhaps be ascribed to strange prejudices, or to a spirit of scepticism, when I declare, that hitherto I have seen no evidence that such a person as Walter Stewart of Scotland, in the reign of Malcolm III. did ever exist.

"We are gravely told, 'That Walter the son of Fleance, the son of Banquo, Thane of Lochaber, having killed a man at the court of Griffith, prince of Wales, sought refuge with Edward the Confessor; and having killed another man at Edward's court, sought refuge with Alan the Red, earl of Brittany: That, on the Norman invasion, he came to England with the earl of Brittany, and signalized himself at the battle of Hastings in 1066: That the earl of Brittany, by his first wife Emma, daughter of Siward earl of Northumberland, had an only child Christina; and that he bestowed her in marriage on the young hero." This is the story which, after various improvements since the days of Boece, has had the good fortune to obtain credit.

"That Walter, before he had well attained to the age of manhood, should have slain two men in private quarrels, is a circumstance improbable, yet possible; and therefore I object not to it. But his alliance with the earl of Brittany cannot be so easily admitted.

"Alan, surnamed *le Roux*, a younger son of Eudo earl of Brittany, was one of the gallant adventurers who came over with William the Conqueror; *he had neither territories nor court*. The historians of Brittany positively assert that he had no children. Besides, it is hard to say by what accident Alan *le Roux* should have become acquainted with Emma the daughter of Siward earl of Northumberland! I suppose that our historians invented this alliance, in order to strengthen the connection between Walter the Stewart and Malcolm III.

"According

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Some authors tell us, that at the acceſſion of Robert II. his title was diſputed by William earl of Douglas. If any ſuch claim was preferred, an aſſembly of the States ſet it aſide, and it was reſolved that Robert ſhould be crowned at Scone; and to take away for the future all diſputes concerning the ſucceſſion, a particular act was framed, by which the kingdom was ſecured to Robert and his heirs.

The new king being thus eſtabliſhed on the throne, endeavoured to renew the war with the Engliſh, in order to recover from them the town of Berwick, and ſome other places on the borders. In this, however, he failed; and as 56,000 pounds of David's ranſom ſtill remained unpaid, Robert bound himſelf to diſcharge it at the rate of 4000 marks every midſummer. He then propoſed an alliance with France; but the terms demanded by that kingdom being, that Scotland ſhould be obliged to make war with England whenever France ſhould require it, Robert could not by any means be induced to conſent to ſuch a requiſition, which would have obliged him to break through the moſt ſolemn treaties, whenever the king of France ſhould think proper to break with England. A new treaty, therefore, was entered into, by which it was provided, that neither Scotland nor France ſhould be obliged to make war with England; and by another clauſe, that the diſpenſation or authority even of the pope himſelf ſhould never free the kings or kingdoms of France and Scotland from the obligations they lay under to aſſiſt one another, as often as required, in oppoſition to the kingdom of England. In caſe of a competition for the crown of Scotland, the king of France and his heirs were to take care that no Engliſh influence was uſed; but that the matter being by the greateſt and beſt part of the nation decided conformably to the laws and eſtabliſhments of Scotland, he ſhould with all his power defend and aſſiſt the perſon ſo eſtabliſhed. Laſtly, it was agreed that no Frenchman ſhould ever henceforth ſerve for wages, or otherwiſe, againſt Scotland, nor any Scotſman againſt France.

253 Treaty with France.

This laſt article occaſioned a recal of all the Scots from the Engliſh armies, which Edward looked upon to be a prelude to an invaſion. He accordingly iſſued writs for aſſembling all the militia in the north of England. At this time an invincible hatred ſubſiſted between the neighbouring people of both nations, which extended

254 War betwixt the Scots and Engliſh borderers.

"According to one account, the genealogies of their families ſtand thus:

Siward earl of Northumberland *.

Emma = Alan earl of Brittany.	Another daughter = Duncan king of Scots.
Chriſtina = Walter the Stewart.	Malcolm III.

"Thus Walter the Stewart and Malcolm III. were couſins-german.

"According to another account, the genealogy of their families ſtands thus:

Siward Earl of Northumberland.	His ſiſter = wife of Duncan.
Emma = Alan Earl of Brittany.	Malcolm III.
Chriſtina = Walter the Stewart.	

"Thus the mother of Walter the Stewart and Malcolm III. were couſins-german.

"It is ſaid, 'That Walter the Stewart had a ſon, Alan, alſo Stewart of Scotland.' The evidence of this is to be found in a charter granted by Earl Goſpatrick, and in another charter granted by his ſon Waldeve Earl of March, at Dunbar. In them Alden, or Aldan Dapifer, is mentioned as a witneſs; that is, ſay our antiquaries, *Allan, the ſtewart of Scotland.*

"This is the fundamental propoſition on which the genealogy of the houſe of Stuart, as it is commonly underſtood, may be ſaid to reſt. It will be remarked, that this hypotheſis takes it for granted, that *Alaen* or *Aldan*, and *Alan*, are the ſame; upon what authority I know not. The Alden mentioned in the two charters ſeems to have been the ſtewart of Earl Goſpatrick, and of Earl Waldeve, not the ſtewart of Scotland.

To the charter by Earl Goſpatrick, there are eight witneſſes: 'Andrew the arch-deacon; Adam his brother; Nigel the chaplain; Ketel the ſon of Dolphin; Ernald; *Alden the Stewart* (Dapifer); Adam the ſon of Alden; Adam the ſon of Goſpatrick.' Is it poſſible for credulity itſelf to believe, that the *Alden* placed ſo low in ſuch company, was *the high ſtewart of Scotland*, a man at leaſt as honourable as Goſpatrick himſelf? I can have no doubt, that the witneſſes to this charter were the dependents or houſehold-ſervants of Earl Goſpatrick; and that if we interpret *Nigellus Capellanus* to be *Nigel the earl's chaplain*, we muſt interpret *Aldenus Dapifer* to be *Alden the earl's ſtewart.*

"To the charter granted by Earl Waldeve, there are nine witneſſes. *Alden Dapifer* is the ſeventh in order. There are only three among them who ſeem to have been landed men: 'Elias de Hadeſtandena (probably Haſſenden),

* There was a certain princeſs of Denmark who brought forth a ſon to a *bear*. This ſon was called *Bern*, and, natural enough like, had ears like a bear. He was the father of Siward earl of Northumberland. *Brompton*, p. 915. ap. Twiſden.

extended not only through the lower ranks, but had pervaded the higher claſſes alſo. The inhabitants of the borders, indeed, paid very little regard to the orders of their reſpective ſovereigns; ſo that daily hoſtilities were committed by them upon each other when there was peace between the ſovereigns. The inhabitants of theſe countries had eſtabliſhed with one another certain conventions, which have ſince been collected, and go by the name of the *Border laws*. The families of Douglas and Percy, whoſe eſtates lay contiguous to one another, were at perpetual variance. It had been common for the borderers of both kingdoms, during a truce, to frequent each others fairs; and a ſervant of the earl of March had been killed in a fray at that of Roxburgh, which was ſtill in the hands of the Engliſh. Juſtice for this murder was demanded from lord Percy; but he ſlighted the complaint. On this the earl of March, with his brother the earl of Moray, aſſembling their followers, entered the next fair that was held in Roxburgh, plundered and burnt the town, and killed all the Engliſh who fell into their hands. The Engliſh borderers were ordered to lay waſte the lands of the earl of March; but, in their way thither, deſtroyed the eſtate of Sir John Gordon, a man of great property in the ſouth of Scotland. Sir John in his turn invaded England, from whence he drove off a large booty in cattle, and a number of priſoners. In his retreat he was attacked by a body of freſh troops under Sir John Liſburn, at a place called *Caram*. An obſtinate encounter followed. The Scots were five times repulſed; but at laſt they renewed the charge with ſuch fury, that they made Liſburn, his brother, and ſeveral other perſons of diſtinction, priſoners, together with all their ſurviving ſoldiers. On this lord Percy with 7000 men encamped at Duns, in the ſouth of Scotland; but was obliged to retire, probably for want of ſubſiſtence for his army. In the mean time, Muſgrave, the governor of Berwick, who had been ordered to join Percy with a detachment from the garriſon, was on his march intercepted, defeated, and taken priſoner by Sir John Gordon; after which the border war became general on both ſides. The iſſue of theſe diſturbances is but little known; however, in 1377, we find them raging with more violence than ever. The fair of Roxburgh was once more the ſcene of action, and the town was again burnt down by the Scots. Lord Percy, who was now earl

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Haſſenden), William de Copland, and William de Hellebat (q. Elbottle); all the three are placed before *Alden Dapifer*.

"It has been remarked, 'That in thoſe days the title of *ſtewart* or *dapifer* was too high a title to be given to the retainer of an earl.' I anſwer, that the Saxon Chronicle, *anno* 1093, ſays, 'Morael of Boebbahurh was thaes eorles *ſtiward*,' i. e. Morel of Bamborough was this earl's *ſtewart*, or the ſtewart of Robert Earl of Northumberland. Beſides, to a charter granted by Earl Goſpatrick the Elder, *Lambertus Dapifer* is a witneſs. If *Lambertus Dapifer*, in a charter of Goſpatrick the Elder, implies *Lambert the ſtewart of the family of March*, why ſhould *Aldenus Dapifer*, in the charters of the ſon and grandſon of Goſpatrick, imply *the ſtewart of Scotland?*

"I believe that no defender of the common hypotheſis will anſwer this objection, by pretending that *Lambertus Dapifer* was indeed *ſtewart of Scotland*. Such an anſwer would leave no room for Walter ſtewart of Scotland, who is held to have been a diſtinguiſhed perſonage in the reign of Malcolm III.

"It is curious to ſee upon what ſlight grounds our antiquaries have eſtabliſhed the connection between *Aldenus Dapifer* and the houſe of Stewart. *Walterus filius Alani* appears to have flouriſhed in the reign of David I. In the reign of Malcolm IV. he is termed *Dapifer*. Hence it has been raſhly concluded, that *Walterus Dapifer filius Alani* was the ſon of that *Aldenus Dapifer* who is a witneſs to the charters of Goſpatrick and Waldeve.

"I perſuade myſelf, that *Alden Dapifer*, and *Alen the father of Walter* ſtewart of Scotland, in the reign of Malcolm IV. were different perſons; and that they had nothing in common but the Chriſtian name, if indeed they had that in common.

"Some of my readers may demand, '*Who* then was Alen the father of Walter, ſtewart of Scotland in the reign of Malcolm IV.?'

"I can only anſwer this queſtion by demanding, '*Who* was the father of Martach Earl of Marre in the reign of Malcolm III.; of Gilchriſt Earl of Angus in the reign of Alexander I.; of Fergus Lord of Galloway in the reign of Malcolm IV.; or of Friſkinus de Moravia, anceſtor of the family of Sutherland, in the reign of William the Lion? Or, to keep in the ſuppoſed line of the royal family of Stewart, '*Who* was the father of Banquho Thane of Lochaber?'

"Many anſwers may no doubt be made to this laſt queſtion. Kennedy ſays, that the father of Banquho was one of the ſeven ſons of Core king of Munſter; Sir George M'Kenzie, Of Ferquhard, the ſon of Kenneth III.; and Simpſon, The ſon of Ferquhard Thane of Lochaber, the ſon of Kenneth, the ſon of Murdoch, the ſon of Doir, the ſon of Eth king of Scotland.

"It is remarkable, that Abercrombie relates all thoſe contradictory ſtories, without ever ſuſpecting the natural inference ariſing from them, 'That if noble perſons are not ſatisfied with a long pedigree, proved by authentic inſtruments, they muſt believe in flattering and ignorant fictions; and that if they ſcorn to wait for the dawn of record to enlighten their deſcent, they muſt bewilder themſelves in dark and fabulous genealogies.'

"In the reign of David I. before the middle of the 12th century, the family of the Stewarts was opulent and powerful. It may therefore have ſubſiſted for many ages previous to that time; but when, and what was its commencement, we cannot determine."

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255 Berwick taken and retaken.

earl of Northumberland, resolved to take signal vengeance. He ravaged the Scots borders, particularly the earl of March's estate, for three days, at the head of 10,000 men. Some time after this, the Scots insurgents became powerful enough to surprise Berwick; which, however, was quickly retaken by the English, who soon after invaded Scotland. In this expedition, however, they succeeded so ill, that Percy thought proper to desist from his expedition. The Scots in the mean time began hostilities by sea, under one Mercer, an experienced sailor; but he had the misfortune to be taken prisoner by the English, with all his fleet. In 1379, England was afflicted with a dreadful plague, of which the Scots took advantage to invade the country. The English historians tell us that they behaved with the utmost barbarity, killing and plundering the defenceless inhabitants without mercy.

This predatory war continued, generally to the disadvantage of the English, till the beginning of November 1380, when a truce was concluded, to continue for a year; which, however, related only to the borders. This truce, like the others, was but very indifferently observed; so that, in 1383, new negociations were set on foot: but, in 1384, the war was renewed with greater fury than ever. In the spring, the earls of March and Douglas took the castle of Lochmaben, and intercepted a rich convoy which the English were sending to Roxburgh; burnt to the ground the castle of Wark, and committed such devastations in the north of England, that several gentlemen offered to resign their estates to King Richard, because they were not able to defend them against the Scots. The Duke of Lancaster entered Scotland at the head of an army; but the inhabitants had removed every thing valuable, so that he marched on to Edinburgh without accomplishing any thing of consequence. On his return, he was harassed by flying parties of Scots, who destroyed a considerable number of his men. This year also the French sent a body of auxiliaries into Scotland. The earls of Northumberland and Nottingham entered Scotland with an army of 10,000 horse and 6000 archers; but retired, after having committed some devastations in the southern counties. The Scots revenged themselves by laying waste all the northern part of England to the gates of Newcastle. Berwick was taken by the Scots, and soon after surrendered for the sum of 2000 marks. A truce was then, as usual, concluded; but in the mean time king Robert was meditating a most severe blow against the English.

256 Formidable invasion of England projected.

The Duke of Burgundy having come to the possession of the estate of his father-in-law the earl of Flanders, claimed the sovereignty of the town of Ghent; but they refused to submit to him, and in this refusal were protected by king Richard II. of England. On this the duke of Burgundy proposed to the French court to invade England in concert with the Scots.—This being agreed to, a fleet was fitted out at Sluys; on board of which John de Vienne, the French admiral, embarked, carrying along with him 50,000 pounds in gold, which the duke of Burgundy advanced in order to be distributed in Scotland, where the admiral arrived safe with a considerable reinforcement, together with supplies of all kinds of military stores. Two thousand auxiliaries, of whom 500 were men-at-arms, arrived with this fleet; and 400 suits of complete armour were brought along with them, in order to be distributed among the bravest of the Scots.

257 But comes to nothing.

The Scots were for a short time elated with the great attention which had been paid them by the French king; but, in the mean time, the Flemings having revolted, the French abandoned the Scots to sustain the whole weight of the English resentment, that they themselves might employ their arms in Flanders. King Richard took the field with a more numerous army than had ever been mustered in England before. Hostilities were begun by the Scots, who, according to custom, invaded the northern parts of England, and carried off a considerable booty; however, in their retreat, they were in the utmost danger of being cut off by the duke of Lancaster, who had been sent with an army to intercept them. The English army proceeded northwards; but could accomplish nothing, on account of the country being desolated, till they came to Edinburgh, which they laid in ashes. Being, however, incessantly harassed by parties of the enemy, they were obliged to retreat.

Nothing remarkable happened till the year 1378, when, after a short truce, the war was renewed with fresh fury. Northumberland and Westmoreland were ravaged by the earls of Fife and Douglas, and Lord Nithsdale defeated a body of 3000 English; after which he formed the plan of invading Ireland, the inhabitants of which had of late been very active against the Scots. In 1388, Douglas obtained permission to raise a body of forces for this invasion; and having landed in safety, defeated the Irish, plundered the town of Carlingford, and loaded fifteen ships with the booty. From thence the Scots sailed to the isle of Man, which in like manner was plundered and laid waste; after which they returned with their booty to Loch Rian in Scotland.

258 England invaded by two Scots armies at once.

Encouraged by this success, Robert determined to proceed on a more enlarged plan. Having assembled a parliament at Aberdeen, a double invasion of England was resolved upon. Two armies were raised; the one, consisting of 25,000 men, commanded by the earls of Mentieth and Fife, Douglas lord of Galloway, and Alexander Lindsay; the other army, consisting of the like number, was commanded by the earls of Douglas, March, Crawford, Moray, the lord high Constable of Scotland, and other persons of distinction. The former entered Cumberland, and the latter Northumberland, both which countries they laid waste, and both armies were to meet within ten miles of Newcastle. The English were thrown into the greatest consternation. Newcastle was defended by the earl of Northumberland, whose age and infirmities rendered him incapable of taking the field; but his place was abundantly supplied by his two sons Henry and Ralph, the former of whom is known in English history by the name of *Hotspur*. The town was garrisoned by the flower of the English nobility and gentry, as well as the inhabitants of the adjacent countries, who had fled thither for refuge. Douglas selected 2000 foot and 300 horsemen out of the two armies, and encamped on the north side of the town, with a view, according to the Scots historians, of storming it next day. In the mean time, he was challenged by Hotspur to fight him hand to hand, with sharp ground spears, in sight of both armies. Douglas accepted the challenge, and Percy was unhorsed the first encounter, and obliged to take refuge within the port-

259 Single combat between earl Douglas and Henry Percy.

Scotland.

portcullis or gate of the town; from whence Douglas brought off his antagonist's lance, with a pennon affixed to it, and swore in his hearing that he would carry it into Scotland. Next day Douglas attempted to storm the town; but, being repulsed in the attack, he decamped in the night. Percy, breathing furious revenge, pursued and overtook the Scots at Otterburn. His arrival was quite unexpected, so that the principal commanders of the Scottish army were sitting down to supper unarmed. The soldiers, however, were instantly prepared for battle; but in the hurry necessarily attending a surprise of this kind, Douglas forgot to put on his cuirass. Both leaders encouraged their men by the most animating speeches; and both parties waited for the rise of the moon, which happened that night to be unusually bright. The battle being joined on the moon's first appearance, the Scots began to give ground; but, being rallied by Douglas, who fought with a battle-ax, the English, though greatly superior in number, were totally routed. Twelve hundred were killed on the spot; and 100 persons of distinction, among whom were the two Percies, were made prisoners by Keith marischal of Scotland. On the side of the Scots the greatest loss was that of the brave earl Douglas, who was killed in consequence of going to battle without his armour, as above related. It was this single combat between Douglas and Percy, and the subsequent battle, which gave rise to the celebrated ballad of Chevy Chace.

260 Battle of Otterburn.

261 The English defeated, and earl Douglas killed.

In the mean time the bishop of Durham was marching towards Newcastle with an army of 10,000 men; but was informed by the runaways of Percy's defeat, which happened on the 21st of July 1388. In a council of war it was resolved to pursue the Scots, whom they hoped easily to vanquish, as being wearied with the battle of the preceding day, and laden with plunder. The earl of Moray, who commanded in chief, having called a consultation of his officers, resolved to venture a battle. The prisoners were almost as numerous as the whole Scots army; however, the generals required no more of them than their words of honour that they should continue inactive during the battle, and remain prisoners still. This condition being complied with, the Scots drew out their army for battle.—Their rear was secured by marshes, and their flanks by large trees which they had felled. In short, their appearance was so formidable, that the English, dreading to encounter a resolute enemy so strongly secured, retired to Newcastle, leaving the Scots at liberty to continue their march to their own country.

Robert being now oppressed with age, so that he could no longer endure the fatigues of government, the administration of affairs devolved upon his second son the earl of Fife; for his eldest son was by nature indolent, and besides lame by an unlucky blow he had received from a horse. Early in the spring of 1389, he invaded England with success: but the same year a truce was concluded, to last from the 19th of June 1389 to the 16th of August 1392; in which the allies of both crowns were included. This truce was violently opposed by the nobility, who suspected their king of being too much under French influence. Upon this the court of France thought proper to send over ambassadors to persuade the nobility to comply; informing them, that in case of a refusal, they could expect no assistance either of men or money from the continent. With difficulty they prevailed, and peace between England and Scotland was once more restored. Scarce, however, was this truce finished, when the peace of the nation was most scandalously violated by Robert's third son the earl of Buchan. This prince having a quarrel with the bishop of Murray, burnt down the fine cathedral of Elgin, which has been called by historians the lanthorn and ornament of the north of Scotland. The king for this crime caused his son to be imprisoned; and a civil war would have been the consequence, had it not been for the veneration which the Scots retained for their old king. However, they did not long enjoy their beloved monarch; for he died on the 19th of April 1390, in the 75th year of his age, and the 19th of his reign.

262 Robert II. dies, and is succeeded by Robert III.

On the death of Robert II. the crown devolved upon his eldest son John; but the name being thought unlucky in Scotland, he changed it for that of Robert, though he was still called by the commonalty *Robert John Fernzier*. He had been married to Annabella, the daughter of Sir John Drummond, ancestor to the noble family of Perth; and was crowned along with his consort at Scone, on the 13th of August 1390. He confirmed the truce which had been entered into with England, and renewed the league with France; but the beginning of his reign was disturbed by the wars of the petty chieftains with each other. Duncan Stewart, son to Alexander earl of Buchan, who had died in prison for burning the cathedral of Elgin, assembling his followers under pretence of revenging his father's death, laid waste the county of Angus. Walter Ogilvy, the sheriff of Angus, attempting to repel the invaders, was killed, with his brother and 60 of their followers. The king then gave a commission to the earl of Crawford to suppress them; which he soon did, and most of them were either killed or executed. The followers of the earl of Buchan were composed of the wildest Highlanders, distinguished by the title of *Catterenes*, which answers to that of banditti. That such a race of people existed is certain from the records of Scotland; but it is not easy to determine how they obtained their subsistence, being void of the knowledge of agriculture and of every civil art. There is some reason to believe that many of them came from the Western Isles; and that they or their ancestors had emigrated from the eastern parts of Ireland. The lands they inhabited were never cultivated till towards the middle of the last century; and, according to the most authentic accounts, they lived entirely upon animal food.

263 Rebellion of the earl of Buchan.

264 Account of the Catterenes.

The earl of Crawford's success against the followers of Buchan encouraged Robert to intrust him with a commission for subduing other insurgents by whom the peace of the country was disturbed. The most remarkable of these were the *Clan Chattan* and *Clan Kay*. As both these tribes were numerous and brave, Crawford was not without apprehensions that they might unite against him as a common enemy, and defeat him if he attempted to suppress them by force. He proposed, therefore, that the two rival clans should each choose 30 men, to determine their differences by the sword, without being allowed the use of any other weapon. The king and his nobility were to be spectators of the combat; the conquered clan were to be pardoned for all their former offences, and the conquerors honoured with

264 Battle between the champions of the clan Chattan and clan Kay.

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with the royal favour. This propoſal was readily accepted by both parties, and the north inch of Perth was to be the ſcene of action. But, upon muſtering the combatants, it was found that one of them, belonging to the clan Chattan, had abſented himſelf. It was propoſed to balance this difference by withdrawing one of the combatants from the clan Kay; but not one of them could be prevailed on to reſign his place. At laſt one Henry Wynd, a ſaddler, though no way connected with either party, offered to ſupply the place of him that was abſent, on condition of his receiving a French crown of gold (about 7 s. 6 d. of our money); which was immediately paid him. The combat then began with incredible fury; but at laſt, through the ſuperior valour and ſkill of Henry Wynd, victory declared in favour of the clan Chattan. Only ten of the conquerors, beſides Wynd, were left alive; and all of them deſperately wounded. Of the clan Kay only one remained; and he having received no hurt eſcaped by ſwimming acroſs the Tay.

While theſe internal broils were going on, the truce which had lately been concluded with England was ſo ill obſerved, that it became neceſſary to enter into freſh negociations. Theſe, like others which had taken place before, had very little effect. The borderers on both ſides had been ſo accuſtomed to ravage and plunder, that they could not live in quiet. King Robert alſo was thought to be too much attached to the king of England. He had introduced the new title of *duke*, which he beſtowed firſt on the prince royal; but making an offer of that honour to one of the heads of the Douglas family, it was rejected with diſdain. That powerful family had never loſt ſight of an ancient claim they had upon the caſtle of Roxburgh, which was ſtill in the poſſeſſion of the Engliſh; and this year the ſon of the earl of Douglas, Sir William Stewart, and others, broke down the bridge of Roxburgh, plundered the town, and deſtroyed the forage and corn there and in the neighbouring country. The Engliſh applied for ſatisfaction; but obtained none, as the confuſion which involved the kingdom by the depoſition of Richard II. and the acceſſion of Henry IV. prevented them from having recourſe to arms, the only argument to which the Scots patriots in thoſe days would liſten.

265 Title of Duke introduced into Scotland.

No ſooner was the cataſtrophe of Richard known in Scotland, than they reſolved to avail themſelves of it; and invading the north parts of England, demoliſhed the caſtle of Wark, and laid the neighbouring country under contribution. The ſituation of Henry's affairs did not admit of his reſenting this inſult. He contented himſelf with nominating his brother the earl of Weſtmoreland, to treat with the Scots about a truce or peace; or, if that could not be obtained, to make a mutual agreement, that the towns of Dumfries in Scotland, and Penrith in England, ſhould be free from hoſtilities during the war. To this propoſal the Scots paid no regard; and being encouraged by the court of France, who reſented the depoſition of Richard, they renewed their ravages in England. In 1400, the king of England called a parliament, in order to conſult on the moſt proper means of repelling the Scottiſh invaſions; and in this he was greatly aſſiſted by the diviſions of the Scots among themſelves. The duke of Rotheſay, the heir-apparent of the crown, was now grown up to man's eſtate, and it was thought proper to provide a ſuitable conſort for him. The king is ſaid to have ſcandalouſly put up his ſon's marriage at auction, and offered him to the lady whoſe father could give him the higheſt price. The earl of March was the higheſt bidder; and advanced a conſiderable ſum in ready money, on condition that his daughter ſhould become the royal bride. This ſordid match was oppoſed by Douglas, who propoſed his own daughter the lady Margery. So degenerate was the court of Scotland at this time, that neither the king nor the duke of Rotheſay oppoſed this propoſal of a new match, becauſe it was to be purchaſed with a freſh ſum; and they even refuſed to indemnify the earl of March for the money he had already advanced.

266 Mercenary behaviour of Robert with regard to his ſon's marriage.

As the duke of Albany ſided with Douglas, a council of the nobility was privately aſſembled, which annulled the contract of the lady Elizabeth Dunbar, the earl of March's daughter, in favour of the lady Margery, daughter to the earl of Douglas; but without taking any meaſures for repaying the money to the earl of March. The continuator of Fordun informs us, that the earl of Douglas paid a larger ſum for his daughter's fortune than that which had been advanced by the earl of March, and that the earl of Douglas's daughter was married to the duke of Rotheſay: that, before the marriage was celebrated, March demanded that the money he had advanced ſhould be reimburſed; but receiving an unſatisfactory anſwer, he declared, that as the king had not fulfilled his bargain, he would bring unexpected calamities upon the country. Accordingly he fled into England, leaving his caſtle of Dunbar to the cuſtody of his nephew Robert Maitland, who ſoon after put it into the hands of the earl of Douglas, called in hiſtory *Archibald the Grim*, from the ſternneſs of his viſage.

267 Earl of March revolts.

As ſoon as Robert heard of the revolt of the earl of March, he ſent ambaſſadors demanding back his ſubject; but the requeſt was diſregarded. On the other hand, the earl of March demanded repoſſeſſion of the caſtle of Dunbar, pleading, that he had committed no act of treaſon, but had come to England under a ſafe conduct from king Henry, on purpoſe to negociate his private affairs: but this requeſt was diſregarded; upon which he ſent for all his family and followers to England, where they joined him in great numbers. This produced a war between the two kingdoms. The earl of March, with Henry Percy ſurnamed *Hotſpur*, invaded Scotland, penetrating as far as Haddington, and carrying off great numbers of the inhabitants into captivity. From thence they went to Peebles, and then to Linton, ravaging the country all the way as they paſſed along. They next beſieged the caſtle of Hales, and took ſeveral of the neighbouring forts; but Archibald the Grim, or rather his ſon, having raiſed an army againſt them, they were ſtruck with terror, and fled to Berwick, to the gates of which they were purſued by the Scots. At this time the Scottiſh admiral, Sir Robert Logan, was at ſea with a ſquadron; but miſcarried in an attempt he made upon ſome Engliſh ſhips of war that protected their fleet when fiſhing upon the coaſt of Scotland. After this the Engliſh plundered the Orkney iſlands; which, though belonging

268 Invaſion of Scotland by Henry Percy.

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ing to the crown of Norway, were at that time governed, or rather farmed, by Sinclair the Scots earl of Orkney and Caithness.

All this time the earl of March continued under the protection of the king of England. He had received repeated invitations to return to his allegiance: but all of them being rejected, he was proclaimed a traitor; and the Scottish governor made a formal demand of him from king Henry. With this the latter not only refused to comply, but renewed his league with the lord of the isles. He pretended also, that at this time he had intercepted some letters from the Scottish regency, which called him "a traitor in the highest degree;" and he alleged this as a reason why he protected not only the earl of March but the lord of the Isles.

On the 25th of July 1400, the earl of March renounced his homage, fealty, and service, to the king of Scotland, and transferred them to Henry by a formal indenture. For this the earl was rewarded with a pension of 500 merks Sterling, and the manor of Clipestone in Sherwood forest. Henry now began to revive the claim of homage from the kings of Scotland, and even to meditate the conquest of the kingdom. He had indeed many reasons to hope for success; the principal of which were, the weakness of the Scottish government, the divided state of the royal family, and the dissensions among the chief nobility. For this purpose he made great preparations both by sea and land; but before he set out on his journey, he received a letter from the duke of Rothesay, full of reproaches on account of the presumptuous letters which Henry had addressed to Robert and his nobility. The letter was addressed by the duke to his adversary of England, as the Scots had not yet recognized the title of Henry to the crown of England. Towards the end of it the duke, according to the custom of the times, defired Henry, in order to avoid the effusion of Christian blood, to fight him in person with two, three, or an hundred noblemen on a side. But this challenge produced no other answer from Henry, than that "he was surprised that the duke of Rothesay should consider noble blood as not being *Christian*, since he defired the effusion of the one, and not of the other." Henry arrived at Leith on the very day in which he had appointed the Scottish nobility to meet him and pay their homage, and conclude a peace between the two crowns. In all probability, he expected to have been joined by great numbers of the discontented Scots; and he flattered the English with a promise of raising the power and glory of their country to a higher pitch than it had ever known. Under this pretext, he seized upon the sum of 350,000 pounds in ready money, besides as much in plate and jewels, which had been left by Richard in the royal treasury. He raised also vast contributions on the clergy and nobility, and likewise on the principal towns and cities. At last, finding that neither his vast preparations, nor the interest of the earl of March, had brought any of the Scots to his standard, he formed the siege of Edinburgh castle, which was defended by the duke of Rothesay, and, as some say, by the earl of Douglas. The duke of Albany, brother to king Robert, was then in the field with an army, and sent a letter to king Henry promising, that if he would remain where he was for six days, he would give him battle, and force him to raise the siege, or lose his life. When this was written, the duke was at Caldermuir; and Henry was so much pleased with the letter, that he presented the herald who delivered it with his upper garment, and a chain of gold; promising, on his royal word, that he would remain where he was until the appointed day. On this occasion, however, the duke forfeited his honour; for he suffered six days to elapse without making any attempt on the English army.

269 Henry IV. projects the conquest of Scotland.

Scotland.

Henry, in the mean time, pushed on the siege of Edinburgh castle; but met with such a vigorous resistance from the duke of Rothesay, that the hopes of reducing it were but small. At the same time he was informed that the Welsh were on the point of rebellion under the famous chieftain named *Owen Glendower*. He knew also that many of the English were highly dissatisfied with his title to the crown; and that he owed his peaceable possession of it to the moderation of the earl of March, who was the real heir to the unfortunate Richard, but a nobleman of no ambition. For these reasons he concluded it best to raise the siege of Edinburgh castle, and to return to England. He then agreed to a truce for six weeks, but which was afterwards prolonged, probably for a year, by the commissioners of the two crowns, who met at Kelso.

270 But fails in his attempt.

In 1401, Scotland suffered a great loss by the death of Walter Trail, the archbishop of St Andrew's, a most exemplary patriot, and a person of great influence. Archibald Douglas the Grim had died some time before, and his loss was now severely felt; for the king himself, naturally feeble, and now quite disabled by his age and infirmities, was sequestered from the world in such a manner, that we know not even the place of his residence during the last invasion of Scotland by the English. This year also queen Anabella died, so that none remained who might be able to heal those divisions which prevailed among the royal family. Robert duke of Albany, a man of great ambition, was an enemy to the duke of Rothesay, the heir-apparent to the crown; and endeavoured, for obvious reasons, to impress his father with a bad opinion of him. This prince, however, appears to have been chargeable with no misdemeanour of any consequence, excepting his having debauched, under promise of marriage, the daughter of William Lindsay of Rossy. But this is not supported by any credible evidence; and, though it had been true, could never justify the horrid treatment he met with, and which we are now about to relate.

271 Conspiracy against the duke of Rothesay.

One Ramorgny, a man of the vilest principles, but an attendant on the duke of Rothesay, had won his confidence; and, perceiving how much he resented the conduct of his uncle the duke of Albany, had the villany to suggest to the prince the dispatching him by assassination. The prince rejected this infamous proposal with such horror and displeasure, that the villain, being afraid he would disclose it to the duke of Albany, informed the latter, under the seal of the most inviolable secrecy, that the prince intended to murder him; upon which the duke, and William Lindsay of Rossy his associate in the treason, resolved upon the prince's death. By practising upon the doating king, Lindsay and Ramorgny obtained a writ directed to the duke of Albany, impowering him to arrest his son, and to keep him under restraint, in order for his amendment. The same

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traitors had previously possessed the prince with an apprehension that his life was in danger, and had persuaded him to seize the castle of St Andrew's, and to keep possession of it during the vacancy of that see. Robert had nominated one of his bastard brethren, who was then deacon of St Andrew's, to that bishopric: but being a person no way fitted for such a dignity, he declined the honour, and the chapter refused to elect any other during his lifetime; so that the prince had a prospect of possessing the castle for some time. He was riding thither with a small attendance, when he was arrested between the towns of Nidi and Stratirum (according to the continuator of Fordun), and hurried to the very castle of which he was preparing to take possession.

The duke of Albany, and the earl of Douglas, who was likewise the prince's enemy, were then at Culross, waiting the event of their detestable conspiracy; of which they were no sooner informed, than they ordered a strong body of ruffians to carry the royal captive from the castle of St Andrew's; which they did, after clothing him in a russet cloak, mounting him on a very sorry horse, and committing him to the custody of two execrable wretches, John Selkirk and John Wright, who were ordered by the duke of Albany to starve him to death. According to Buchanan, his fate was for some time prolonged by the compassion of one of his keeper's daughters, who thrust thin oat cakes through the chinks of his prison-walls, and by a woman who, being a wet nurse, found means to convey part of her milk to him through a small tube. Both these charitable females were detected, and put to death; the young lady's inhuman father being himself the prosecutor. The prince himself died a few days after, on Easter-eve, his hunger having impelled him to devour part of his own flesh.

272 Who is starved to death.

In the mean time, Robert, being yet ignorant of the murder of his son, had renewed, or rather consented to renew, hostilities with England. On the expiration of the truce, Henry had sent a commission to the earls of Northumberland and Westmoreland, to offer the Scots any terms they could reasonably desire; but every offer of this kind being rejected, there was a necessity for renewing hostilities. The earl of March had received another pension from Henry, on condition of his keeping on foot a certain number of light troops to act against the Scots. This had been done; and so effectually did these now annoy their enemies, that the earl of Douglas was obliged to take the field against them. By dividing his men into small parties, he repressed the depredations of these invaders; and Thomas Haliburton, the commander of one of the Scottish parties, made incursions into England as far as Bamborough, from whence he returned with a considerable booty. This encouraged another chieftain, Patrick Hepburn, to make a similar attempt: but being elated with his success, he remained too long in the enemy's country; so that the earl of March had time to send a detachment to intercept him on his return. This produced a desperate encounter, in which Hepburn was killed; the flower of the youth of Lothian, who had attended in this expedition, were cut off, and scarce a single Scotsman remained unwounded.

273 A body of Scots cut off by the English.

On the news of this disaster, the earl of Douglas applied to the duke of Albany for assistance. He was immediately furnished with a considerable army, according to some, consisting of 10,000; according to others of 13,000; and according to the English historians, of 20,000 men. Murdoc, the son of the duke, attended the earl on this expedition, as did also the earls of Moray, Angus, Orkney, and many others of the chief nobility, with 80 knights. The Scots on this occasion conducted themselves with the same imprudence they had done before. Having penetrated too far into the country, they were intercepted by the English on their return, and obliged to engage at a place called *Homeldon*, under great disadvantages. The consequence was, that they were utterly defeated, and almost the whole army either killed or taken.

274 Their defeat at Homeldon.

Henry Hotspur, to whom this victory was chiefly owing, resolving to pursue the advantage he had gained, entered the southern parts of the kingdom, and laid siege to a castle called *Cocklawys*, on the borders of Teviotdale. The castle was for some time bravely defended: but at last the governor entered into a treaty, by which it was agreed to deliver up the castle, in case it was not relieved by the king or governor in six weeks; during which time no additional fortifications were to be made. But while the English were retiring, one of Percy's soldiers pretended that the Scots had broke the capitulation, by introducing a mattock into the place. The governor, hearing of this charge, offered to fight any Englishman who should engage to make it good. A champion was accordingly singled out, but was defeated by the Scotsman; and the English army retired according to agreement. The matter then being debated in the Scottish council, it was resolved to send relief to the castle. Accordingly the duke of Albany, with a powerful army, set out for the place; but before he came there, certain news were received of the defeat and death of Hotspur, at Shrewsbury, as related under the article ENGLAND, n° 182.

275 Cocklawys castle besieged by the English.

In the year 1404, king Henry, exceedingly desirous of a peace with Scotland, renewed his negociations for that purpose. These, however, not being attended with success, hostilities were still continued, but without any remarkable transaction on either side. In the mean time, king Robert was informed of the miserable fate of his eldest son the duke of Rothesay; but was unable to resent it by executing justice on such a powerful murderer. After giving himself up to grief, therefore, for some time, he resolved to provide for the safety of his second son James, by sending him into France. This scheme was not communicated to the duke of Albany; and the young prince took shipping with all imaginable secrecy at the Bass, under the care of the earl of Orkney. On his voyage he was taken by an English privateer off Flamborough-head, and brought before Henry. The English monarch having examined the attendants of the prince, they told him that they were carrying the prince to France for his education. "I understand the French tongue (replied Henry), and your countrymen ought to have been kind enough to have trusted me with their prince's education." He then committed the prince and his attendants close prisoners to the tower of London. The news of this disaster arrived at the castle of Rothesay in the isle of Bute (the place of Robert's residence) while the king was at supper. The news threw him into such an agony of grief, that he died in three days,

276 The Scottish prince, James, sent to France, but is taken by the English.

277 Robert dies of grief.

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days, the 29th of March 1405, after having reigned near 15 years.

278 The duke of Albany regent.

By the death of Robert, and the captivity of the prince, all the power devolved upon the duke of Albany, who was appointed regent by a convention of the states assembled at Scone. The allegiance of the people, however, to their captive prince could not be shaken; so that the regent was obliged to raise an army for the purpose of rescuing him. Henry summoned all his military tenants, and made great preparations: but, having agreed to treat of a final peace with Ireland and the lord of the Isles, the regent laid hold of this as a pretence for entering into a new negociation with the English monarch; and a truce was concluded for a year, during which time all differences were to be settled. In consequence of this agreement, Rothesay, king at arms, was appointed commissary-general for the king and kingdom of Scotland; and in that quality repaired to the court of England. At the time when the prince of Scotland was taken, it seems that there had been a truce, however ill observed on both sides, subsisting between the two nations. Rothesay produced the record of this truce, which provided that the Scots should have a free navigation; and in consequence of this, he demanded justice of the captain and crew of the privateer who had taken the prince. Henry ordered the matter to be inquired into: but the English brought their complaints as well as the Scots; and the claims of both were so intricate, that the examination fell to the ground, but at the same time the truce was prolonged.

279 Schemes of Henry against Scotland.

In the end of the year 1409, or the beginning of 1410, the war was renewed with England, and Henry prepared to strike a fatal blow which he had long meditated against Scotland. He had, as we have seen, entered into a league with the lord of the Isles, where a considerable revolution then happened. Walter Lesley had succeeded to the estate and honours of the earl of Ross, in right of his wife, who was the heir. By that marriage, he had a son named *Alexander*, who succeeded him; and a daughter, Margaret, who was married to the lord of the Isles. This Alexander had married one of the regent's daughters; and dying young, he left behind him an only daughter, Euphane, who was deformed, and become a nun at North Berwick. Her grandfather, the regent, procured from her a resignation of the earldom of Ross, to which she was undoubted heir, in favour of John earl of Buchan, but in prejudice of Donald lord of the Isles, who was the son of Margaret, sister to the earl Alexander, and consequently the nearest heir to the estate after the nun. Donald applied for redress; but his suit being rejected, he, with his brother John, fled into England, where he was most graciously received by king Henry. According to the instructions given him by the English monarch, Donald returned to his own dominions in the Isles, where he raised an army, and passing over into Rossshire, violently seized on the estate in dispute. In a short time he found himself at the head of 10,000 Highlanders; with whom he marched into the province of Moray, and from thence to Strathbogie and Garioch, which he laid under contribution. Advancing towards Aberdeen, with a view to pay his troops with the plunder of that city, which was then a place of considerable trade, he was met by the earl of Marr, whom the regent had employed to command against him, at a village called *Harlaw*, in the neighbourhood of Aberdeen. A fierce engagement ensued, in which great numbers were killed on both sides, and the victory remained uncertain: but Donald, finding himself in the midst of an enemy's country, where he could raise no recruits, began to retreat next day, and the shattered state of the royal army prevented him from being pursued, he escaped to his own dominions, where in a short time he submitted, and swore allegiance to the crown of Scotland.

280 Battle of Harlaw.

281 The earl of March returns to his allegiance to Scotland.

In the mean time, Henry continued the war with Scotland, and refused to renew the truce, though frequently solicited by the Scots. He had now, however, sustained a great loss by the defection of the earl of March, who had gone over to the Scots, though the historians have not informed us of his quarrel with the English monarch. On his return to Scotland, he had been fully reconciled to the Douglas family, and now strove to distinguish himself in the cause of his country. This, with the countenance which was shown the Scots by the court of France, a bull published by the pope in their favour, and the vigorous behaviour of the regent himself, contributed to reduce Henry to reason; and we hear of no more hostilities between the two nations till after the death of the English monarch, which happened in the year 1413.

In 1415, the truce being either broken or expired, the Scots made great preparations for besieging Berwick. The undertaking, however, came to nothing; all that was done during the campaign being the burning of Penrith by the Scots, and of Dumfries by the English. Next year a truce was agreed upon, and a treaty entered into for the ransom of King James; which was so far advanced, that the English king agreed to his visiting Scotland, provided he engaged to forfeit 100,000 pounds Sterling in case of his failure to return by a certain day. For reasons now unknown, this treaty was broken off, and vast preparations were made for a new invasion of Scotland; which, however, was executed with so little success, that it became known among the common people of Scotland by the name of the *fule raid*, or the foolish expedition.

282 Unsuccessful expedition of Henry.

In 1420, died Robert duke of Albany, regent of Scotland, at the age of 80; and such was the veneration which the Scots had for his memory, that his post of regent was conferred upon his eldest son Murdoch, though a person no way qualified for that station.—The war with England was now discontinued; but in France Henry met with the greatest opposition from the Scots auxiliaries, insomuch, that at last he proclaimed all the Scots in the service of the Dauphin to be rebels against their lawful sovereign, and threatened to treat them as such wherever he found them. It was not long before he had an opportunity of putting this menace in execution; for the town and castle of Melun being obliged through famine to capitulate, one of the articles of capitulation was, that all the English and Scots in the place should be resigned to the absolute disposal of the king of England; and, in consequence of his resolution above-mentioned, caused twenty Scots soldiers who were found in the place to be hanged as traitors. In 1421, Henry returned to England, and with him James the Scots king. On his arrival

283 His cruelty to the Scots in France.

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arrival there, he was informed that the Scots, under the earl of Douglas, had made an irruption into England, where they had burned Newark, but had been forced to return to their own country by a peſtilence, though a new invaſion was daily expected. Inſtead of reſenting this inſult, Henry invited the earl of Douglas to a conference at York; in which the latter agreed to ſerve him during life, by ſea and land, abroad or at home, againſt all living, except his own liege-lord the king of Scotland, with 200 foot and as many horſe, at his own charges; the king of England, in the mean time, allowing an annual revenue of 200 l. for paying his expence in going to the army by ſea or land.

At the ſame time, a new negociation was ſet on foot for the ranſom of king James; but he did not obtain his liberty till the year 1424. Henry V. was then dead; and none of his generals being able to ſupply his place, the Engliſh power in France began to decline. They then became ſenſible how neceſſary it was to be at peace with Scotland, in order to detach ſuch a formidable ally from the French intereſt. James was now highly careſſed, and at his own liberty, within certain bounds. The Engliſh even conſulted him about the manner of conducting the treaty for his ranſom; and one Dougal Drummond, a prieſt, was ſent with a ſafe conduct for the biſhop of Glaſgow, chancellor of Scotland, Dunbar earl of March, John Montgomery of Ardroſſan, Sir Patrick Dunbar of Bele, Sir Robert Lawder of Edrington, Sir William Borthwic of Borthwic, and Sir John Forreſter of Corſtorphin, to have an interview, at Pomfret, with their maſter the captive king of Scotland, and there to treat of their common intereſts. Moſt of theſe noblemen and gentlemen had before been nominated to treat with the Engliſh about their king's return; and Dougal Drummond ſeems to have been a domeſtic favourite with James. Hitherto the Scottiſh king had been allowed an annual revenue of 700 pounds: but while he was making ready for his journey, his equipages and attendants were increaſed to thoſe befitting a ſovereign; and he received a preſent from the Engliſh treaſury of 100 l. for his private expences. That he might appear with a grandeur every way ſuitable to his dignity, at every ſtage were provided relays of horſes, and all manner of fiſh, fleſh, and fowl, with cooks and other ſervants for furniſhing out the moſt ſumptuous royal entertainment. In this meeting at Pomfret, James acted as a kind of a mediator between the Engliſh and his own ſubjects, to whom he fully laid himſelf open; but, in the mean time, the Engliſh regency iſſued a commiſſion for ſettling the terms upon which James was to be reſtored, if he and his commiſſioners ſhould lay a proper foundation for ſuch a treaty. The Engliſh commiſſioners, were the biſhops of Durham and Worceſter, the earls of Northumberland and Weſtmoreland, the lords Nevil, Cornwal, and Chaworth, with maſter John Wodeham, and Robert Waterton. The inſtructions they received form one of the moſt curious paſſages of this hiſtory; and we ſhall here give them, as they are neceſſary for confirming all we have ſaid concerning the diſpoſitions of the two courts at this juncture.

284 Treaty for the liberty of James.

Firſt, To make a faint oppoſition to any private conference between the king of Scotland and the Scotch commiſſioners.

Secondly, To demand that, before the ſaid king ſhall have his full liberty, the kingdom of Scotland ſhould pay to the Engliſh government at leaſt thirty-ſix thouſand pounds as an equivalent, at two thouſand pounds a-year, for the entertainment of King James, who was maintained by the court of England, and not to abate any thing of that ſum; but if poſſible to get forty thouſand pounds.

Thirdly, That if the Scots ſhould agree to the payment of the ſaid ſum, the Engliſh commiſſioners ſhould take ſufficient ſecurity and hoſtages for the payment of the ſame; and that if they ſhould not (as there was great reaſon for believing they would) be ſo far mollified, by ſuch eaſy terms, as to offer to enter upon a negociation for a final and perpetual peace between the two people, that then the Engliſh ſhould propoſe the ſame in the moſt handſome manner they could. Farther, that if ſuch difficulties ſhould ariſe as might make it impracticable immediately to conclude ſuch perpetual peace, that the Engliſh ambaſſadors ſhould, under pretence of paving a way for the ſame, propoſe a long truce.

Fourthly, That in caſe the Engliſh commiſſioners ſhould ſucceed in bringing the Scots to agree to the ſaid truce, they ſhould further urge, that they ſhould not ſend to Charles of France, or to any of the enemies of England, any ſuccours by ſea or land. Farther, that the ſaid Engliſh commiſſioners ſhould employ their utmoſt endeavours to procure the recal of the troops already furniſhed by the Scots to France. The Engliſh are commanded to inſiſt very ſtrenuouſly upon this point, but with diſcretion.

Fifthly, If the Scots ſhould, as a further bond of amity between the two nations, propoſe a marriage between their king and ſome noblewoman of England, the Engliſh commiſſioners are to make anſwer, "That the king of the Scots is well acquainted with many noblewomen, and even thoſe of the blood-royal, in England; and that if the king of the Scots ſhall pleaſe to open his mind more freely on that head, the Engliſh commiſſioners ſhall be very ready to enter upon conferences thereupon." But (continues the record) in caſe the Scotch commiſſioners ſhould make no mention of any ſuch alliance by marriage, it will not appear decent for the Engliſh to mention the ſame, becauſe the women of England, at leaſt the noblewomen, are not uſed to offer themſelves in marriage to men.

Sixthly, If there ſhould be any mention made concerning reparation of damages, that the commiſſioners ſhould then proceed upon the ſame as they ſhould think moſt proper; and that they ſhould have power to offer ſafe-conduct to as many of the Scots as ſhould be demanded, for to repair to the court of England. Thoſe inſtructions are dated at Weſtminſter, July 6th 1423.

Nothing definitive was concluded at this treaty, but that another meeting ſhould be held at York inſtead of Pomfret. This meeting accordingly took place. The Engliſh commiſſioners were, Thomas biſhop of Durham, chancellor of England, Philip biſhop of Wincheſter, Henry Percy earl of Northumberland, and Mr John Wodeham. Thoſe for Scotland were, William biſhop of Glaſgow, George earl of March, James Douglas of Balveny, his brother Patrick abbot of Cambuſkenneth, John abbot of Balmerino, Sir Patrick Dun-

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bar of Bele, Sir Robert Lauder of Edrington, Mr George Borthwic archdeacon of Glasgow, and Patric Houlton canon of Glasgow. On the tenth of September, after their meeting, they came to the following agreement:

First, That the king of Scotland and his heirs, as an equivalent for his entertainment while in England, should pay to the king of England and his heirs, at London, in the church of St Paul, by equal proportions, the sum of forty thousand pounds Sterling.

Secondly, That the first payment, amounting to the sum of ten thousand merks, should be made six months after the king of Scotland's entering his own kingdom; that the like sum should be paid the next year, and so on during the space of six years, when the whole sum would be cleared; unless, after payment of forty thousand merks, the last payment of ten thousand should be remitted, at the intreaty of the most illustrious prince Thomas duke of Exeter.

Thirdly, That the king of Scotland, before entering his own kingdom, should give sufficient hostages for performance on his part. But, in regard that the Scots plenipotentiaries had no instructions concerning hostages, it was agreed,

Fourthly, That the king of Scotland should be at Branspath, or Durham, by the first of March next, where he should be attended by the nobles of his blood, and other subjects, in order to fix the number and quality of the hostages.

Fifthly, That, to cement and perpetuate the amity of the two kingdoms, the governor of Scotland should send ambassadors to London, with power to conclude a contract of marriage between the king of Scotland and some lady of the first quality in England.

James, it is probable, had already fixed his choice upon the lady Joan, daughter to the late earl of Somerset, who was son to John of Gaunt duke of Lancaster, by his second marriage; but he made his people the compliment, not only of consulting their opinion, but of concluding the match. The commissioners, after their agreement at York, proceeded towards London; and Thomas Somerville of Carnwath, with Walter Ogilvy, were added to their number. Being arrived at that capital, they ratified the former articles, and undertook for their king, that he should deliver his hostages to the king of England's officers, in the city of Durham, before the last day of the ensuing month of March; that he should also deliver to the said officers four obligatory letters, for the whole sum of 40,000 l. from the four burghs of Edinburgh, Perth, Dundee, and Aberdeen; that he should give his obligatory letter to the same purpose, before removing from Durham, and should renew the same four days after his arrival in his own kingdom; that the hostages might be changed from time to time for others of the same fortune and quality; that if any of them should die in England, others should be sent thither in their room; and that while they continued to stay in England, they should live at their own charges.

285 Marriage of king James.

The marriage of James with the lady Joan Beaufort was celebrated in the beginning of February 1424. The young king of England presented him with a suit of cloth of gold for the ceremony; and the next day he received a legal discharge of 10,000 pounds, to be deducted from the 40,000 at which his ransom was fixed, and which sum was given as the marriage-portion of the lady. The ceremony being performed, the king and queen set out for Durham, where the hostages were waiting; and arrived at his own dominions, along with the earl of Northumberland and the chief of the northern nobility, who attended him with great pomp. On the 20th of April the same year, he was crowned at Scone; after which ceremony, he followed the example practised by other sovereigns at that time, of knighting several noblemen and gentlemen.

During the dependence of the treaty for James's release, the Scots had emigrated to France in such numbers, that no fewer than 15,000 of them now appeared in arms under the duke of Touraine; but as the history of the war in that country has already been given under the article FRANCE, we shall take no farther notice of it at present, but return to the affairs of Scotland.

286 He reforms several abuses in Scotland.

On his return James found himself in a disagreeable situation. The great maxim of the duke of Albany, when regent, had been to maintain himself in power by exempting the lower class of people from taxes of every kind. This plan had been continued by his son Murdoch; but as the latter was destitute of his father's abilities, the people abused their happiness, and Scotland became such a scene of rapine, that no commoner could say he had a property in his own estate. The Stewart family, on their accession to the crown of Scotland, were possessed of a very considerable patrimonial estate, independent of the standing revenues of the crown, which consisted chiefly of customs, wards, and reliefs. The revenues of the paternal estate belonging to James, had they been regularly transmitted to him, would have more than maintained him in a splendour equal to his dignity, while he was in England; nor would he in that case have had any occasion for an allowance from the king of England. But as the duke of Albany never intended that his nephew should return, he parcelled out among his favourites the estate of the Stewart family, in such a manner that James upon his return found all his patrimonial revenues gone, and many of them in the hands of his best friends; so that he had nothing to depend on for the support of himself and his court but the crown-revenues abovementioned, and even some of these had been mortgaged during the late regency. This circumstance, of itself sufficiently disagreeable, was attended with two others, which tended to make it more so The one was, that the hostages which had been left for the king's ransom in England, being all of them persons of the first rank, were attended by their wives, families, children, and equipages, which rivalled those of the same rank in England, and drew a great deal of ready money out of the nation. The other circumstance arose from the charge of the Scots army in France; where Charles, who had never been in a condition to support it, was now reduced to the utmost necessity: while the revenues of James himself were both scanty and precarious. To remedy these inconveniences, therefore, the king obtained from his parliament an act obliging the sheriffs of the respective counties to inquire what lands and estates had belonged to his ancestors David II. Robert II. and Robert III.; and James formed a resolution of resuming these lands wherever they could be discovered, without regard to persons or circumstances. On this occasion

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287 Several of the nobility executed.

occasion many of the most illustrious personages in the kingdom were arrested: the duke of Albany, his two sons, and the earl of Lennox the duke's father-in-law, were put to death, though their crimes are not specified by historians. Buchanan mentions a tradition, that James barbarously sent to the countess of Lennox the heads of her father, husband, and sons; for the following more barbarous reason, that in the bitterness of her grief she might drop some expressions tending to involve others in the same catastrophe. The countess, however, calmly said, "That, if the charges against the criminals were proved, they deserved their fate."

James now proceeded with great spirit to reform the abuses which had pervaded every department of the state, protected and encouraged learning and learned men, and even kept a diary in which he wrote down the names of all the learned men whom he thought deserving of his encouragement. James himself wrote some poetry; and in music was such an excellent composer, that he is with good reason looked upon as the father of Scots music, which has been so much admired for its elegant simplicity. He introduced organs into his chapels, and a much better style of architecture into all buildings whether civil or religious. Neither did he confine his cares to the fine arts, but encouraged and protected those of all kinds which were useful to society; and, in short, he did more towards the civilization of his people than had been done by any of his predecessors.

In the mean time the truce continued with England. James, however, seemed not to have any inclination to enter into a perpetual alliance with that kingdom. On the contrary, in 1428, he entered into a treaty with France; by which it was agreed, that a marriage should be concluded between the dauphin of France, afterwards Louis XI. and the young princess of Scotland; and so great was the necessity of king Charles for troops at that time, that he demanded only 6000 forces as a portion for the princess.

288 The king murdered.

The rest of the reign of James was spent in reforming abuses, curbing the authority of the great barons, and recovering the royal estates out of the hands of usurpers. In this, however, he used so much severity, that he was at last murdered, in the year 1437. The perpetrators of this murder were the earl of Athol; Robert Grahame, who was connected with the earl, and who was discontented on account of his losing the estate of Strathern, which had been re-annexed to the crown; and Robert, grandchild and heir to the earl of Athol, and one of the king's domestics. The king had dismissed his army, without even reserving to himself a body-guard, and was at supper in a Dominican convent in the neighbourhood of Perth. Grahame had for some time been at the head of a gang of outlaws, and is said to have brought a party of them to Perth in the dead of the night, where he posted them near the convent. Walter Straton, one of the king's cup-bearers, went to bring some wine to the king while at supper; but perceiving armed men standing in the passage, he gave the alarm, and was immediately killed. Catharine Douglas, one of the queen's maids of honour, ran to bolt the outer door; but the bar was taken away by Robert Stuart, in order to facilitate the entrance of the murderers. The lady thrust her arm into the staple; but it was instantly broken, and the conspirators rushed in upon the king. Patric Dunbar, brother to the earl of March, was killed in attempting to defend his sovereign, and the queen received two wounds in attempting to interpose herself betwixt her husband and the daggers of the assassins. James defended himself as long as he could; but at last expired under the repeated strokes of his murderers, after having received 28 wounds.

289 Succeeded by James II.

After the murder of James I. the crown devolved upon his son James II. at that time only seven years of age. A parliament was immediately called by the queen-mother, at which the most cruel punishments were decreed to the murderers of the late king. The crime, no doubt, deserved an exemplary punishment; but the barbarities inflicted on some of those wretches are shocking to relate. Within less than six weeks after the death of the king, all the conspirators were brought to Edinburgh, arraigned, condemned, and executed. The meaner sort were hanged; but on the earl of Athol and Robert Graham the most cruel torments were inflicted, such as pinching with hot irons, dislocation of the joints, &c. The earl of Athol, had, besides, a crown of red-hot iron put on his head; and was afterwards cut up alive, his heart taken out, and thrown into a fire. In short, so dreadful were these punishments, that Æneas Sylvius, the pope's nuncio, who beheld them, said, that he was at a loss to determine whether the crime committed by the regicides, or the punishment inflicted upon them, was the greater.

As the late king had prescribed no form of a regency in case of his death, the settlement of the government became a matter of great difficulty as well as importance. Archibald earl of Douglas, who had been created Duke of Touraine in France, was by far the greatest subject in the kingdom; but as he had not been a favourite in the preceding reign, and the people were now disgusted with regencies, he was not formally appointed to the administration, though by his high rank he in fact enjoyed the supreme power as long as he lived; which, however, was but a short time. He died the same year (1438); and Sir Alexander Livingstone of Callendar was appointed to succeed him as governor of the kingdom, that is, to have the executive power, while William Crichton, as chancellor, had the direction of the civil courts. This was a most unfortunate partition of power for the public. The governor and chancellor quarrelled; the latter took possession of the king's person and the castle of Edinburgh, to neither of which he had any right; but the former had on his side the queen-mother, a woman of intrigue and spirit. Her son was shut up in the castle of Edinburgh; and in a short time there was no appearance either of law or government in Scotland. The governor's edicts were counteracted by those of the chancellor under the king's name, and those who obeyed the chancellor were punished by the governor; while the young earl of Douglas, with his numerous followers and dependents, was a declared enemy of both parties, whom he equally sought to destroy.

290 Supreme power divided between the governor and chancellor of the kingdom.

291 The queen-mother sets her son at liberty.

The queen-mother demanded access to her son, which Crichton could find no pretext for denying her; and she was accordingly admitted with a small train into the castle of Edinburgh. She played her part so well, and

Scotland. and diſſembled with ſo much art, that the chancellor, imagining ſhe had become a convert to his cauſe, treated her with unbounded confidence, and ſuffered her at all hours to have free acceſs to her ſon's perſon. Pretending that ſhe had vowed a pilgrimage to the white church of Buchan, ſhe recommended the care of her ſon's perſon, till her return, to the chancellor, in the moſt pathetic and affectionate terms: but, in the mean time, ſhe ſecretly ſent him to Leith, packed up in a clothes-cheſt; and both ſhe and James were received at Stirling by the governor before the eſcape was known. As every thing had been managed in concert with Livingſton, he immediately called together his friends; and laying before them the tyrannical behaviour of the chancellor, it was reſolved to beſiege him in the caſtle of Edinburgh, the queen promiſing to open her own granaries for the uſe of the army. The chancellor foreſaw the ſtorm that was likely to fall upon him, and ſought to prevent it by applying to the earl of Douglas. That haughty nobleman anſwered him in the terms already mentioned, and that he was preparing to exterminate both parties. The ſiege of Edinburgh caſtle being formed, the chancellor demanded a parley, and to have a perſonal interview with the governor; which the latter, who was no ſtranger to the ſentiments of Douglas, readily agreed to. Common danger united them in a common cauſe; and the chancellor reſigning to the other the cuſtody of the caſtle and the king's perſon, with the higheſt profeſſions of duty and loyalty, the two competitors ſwore an inviolable friendſhip for each other. Next day the king cemented their union, by confirming both of them in their reſpective charges.

292 Intoſtine broils.

The lawleſs example of the earl of Douglas encouraged the other great landholders to gratify their private animoſities, ſometimes at the expence of their honour as well as their humanity. A family-difference happened between Sir Allan Stuart of Darnley, and Thomas Boyd of Kilmarnock; but it was concluded that both parties ſhould come to a peaceable agreement at Polmaiſthorn, between Linlithgow and Falkirk, where Stuart was treacherouſly murdered by his enemy. Stuart's death was revenged by his brother, Sir Alexander Stuart of Beilmouth, who challenged Boyd to a pitched battle, the principals being attended by a retinue which carried the reſemblance of ſmall armies. The conflict was fierce and bloody, each party retiring in its turn, and charging with freſh fury; but at laſt victory declared itſelf for Stuart, the braveſt of Boyd's attendants being cut off in the field. About this time, the iſlanders, under two of their chieftains, Lauchlan Maclean and Murdoc Gibſon, notorious freebooters, invaded Scotland, and ravaged the province of Lenox with fire and ſword. They were oppoſed by John Colquhoun of Luſs, whom they ſlew, ſome ſay treacherouſly, and others, in an engagement at Lochlomond, near Inchmartin. After this, the robbers grew more outrageous than ever, not only filling all the neighbouring country with rapine, but murdering the aged, infants, and the defenceleſs of both ſexes. At laſt, all the labouring hands in the kingdom being engaged in domeſtic broils, none were left for agriculture; and a dreadful famine enſued, which was attended, as uſual, by a peſtilence. James was now about ten years of age; and the wiſeſt part of the kingdom agreed, that the public diſtreſs were owing to a total diſreſpect of the royal authority. The young earl of Douglas never had fewer than 1000, and ſometimes 2000 horſe in his train; ſo that none was found hardy enough to controul him. He pretended to be independent of the king and his courts of law; that he had a right of judicature upon his own large eſtates; and that he was entitled to the exerciſe of royal power. In conſequence of this he iſſued his orders, gave protections to thieves and murderers, affected to brave the king, made knights, and, according to ſome writers, even noblemen, of his own dependents, with a power of ſitting in parliament.

The queen-mother was not wholly guiltleſs of thoſe abuſes. She had fallen in love with and married Sir James Stuart, who was commonly called the *Black Knight of Lorn*, brother to the lord of that title, and a deſcendant of the houſe of Darnley. Affection for her huſband cauſed her to renew her political intrigues; and not finding a ready compliance in the governor, her intereſt inclined towards the party of the Douglaſes. The governor ſought to ſtrengthen his authority by reſtoring the exerciſe of the civil power, and the reverence due to the perſon of the ſovereign.

293 The queen-mother and her huſband impriſoned.

The conduct of the lord Callendar was in many reſpects not ſo defenſible, either as to prudence or policy. When the queen expreſſed her inclination that her huſband might be admitted to ſome part of the adminiſtration, the governor threw both him and his brother the lord Lorn into priſon, on a charge of unnatural practices againſt the ſtate, and abetting the earl of Douglas in his enormities. The queen, taking fire at her huſband's impriſonment, was herſelf confined in a mean apartment within the caſtle of Stirling; and a convention of the ſtates was called, to judge in what manner ſhe was to be proceeded againſt. The caſe was unprecedented and difficult; nor can we believe the governor would have carried matters to ſuch extremity, had he not had ſtrong evidences of her illegal behaviour. She was even obliged to diſſemble her reſentment, by making an open profeſſion before the ſtates, that ſhe had always been entirely innocent of her huſband's practices, and that ſhe would for the future behave as a peaceable and dutiful ſubject to the laws and the ſovereign. Upon making this purgation (as Buchanan calls it), ſhe was releaſed, as alſo her huſband and his brother, being bailed by the chancellor and the lord Gordon, who became ſureties for their good behaviour in the penalty of 4000 merks. The governor was afterwards accuſed of many arbitrary and partial acts of power: and indeed, if we conſider his ſituation, and the violence of the parties which then divided Scotland, it was almoſt impoſſible, conſiſtently with his own ſafety, to have exerted the virtues either of patriotiſm or moderation.

294 Buchanan releaſed.

The chancellor was exceedingly vexed at the ſmall regard which the governor paid to his perſon and dignity, and ſecretly connected himſelf with the queen-mother; but in the mean time he remained at Edinburgh. The king and his mother continued all this time at Stirling; where the governor, on pretence of conſulting the public ſafety, and that of the king's perſon, maintained a ſtrong guard, part of which attended James in his juvenile exerciſes and diverſions. The queen-mother did not fail to repreſent this to her ſon

Scotland.

295 The chancellor gets the king's person into his hands.

son as a restraint upon his liberty; and obtained his consent to put himself into the chancellor's hands. The latter, who was a man of activity and courage, knew well how to avail himself of this permission; and crossing the Forth in the dark with a strong body of horse, they surrounded the king as he was hunting next morning by break of day. It was easy to perceive from the behaviour of James, that he was no stranger to the chancellor's attempt; but some of the king's guard offering to dispute the possession of his person, Sir William Livingston, the governor's eldest son, restrained them, and suffered the king to depart quietly. This surprisal happened on a day when the governor was absent from Stirling; and the chancellor, to make sure of his royal acquisition, entered Edinburgh at the head of 4000 horse, where the king and he were received by the citizens with loud acclamations of joy.

296 Rebellious behaviour of the earl of Douglas.

The governor showed no emotion at what had happened; on the contrary, he invited the chancellor to an interview, and settled all differences with him in an amicable manner. The young lord Douglas, however, continued to brave both parties. As if he had been a sovereign prince, he demanded by his ambassadors, Malcolm Fleming of Cumbernauld, and Allan Lawder, the investiture of the sovereignty of Touraine from Charles the seventh of France; which being readily granted him, served to increase his pride and insolence. The first-fruits of the accommodation between the two great officers of state was the holding of a parliament at Edinburgh, for redressing the public disorders occasioned by the earl of Douglas; and encouragement was given to all persons who had been injured to make their complaints. The numbers which on that occasion resorted to Edinburgh were incredible; parents, children, and women, demanding vengeance for the murder of their relations, or the plunder of their estates; till, by the multiplicity of their complaints, they became without remedy, none being found bold enough to encounter the earl of Douglas, or to endeavour to bring him to a fair trial. The parties therefore were dismissed without relief, and it was resolved to proceed with the haughty earl in a different manner. Letters were written to him by the governor and chancellor, and in the name of the states, requesting him to appear with his friends in parliament, and to take that lead in public affairs to which they were intitled by their high rank and great possessions. The manner in which those letters were penned made the thoughtless earl consider them as a tribute due to his greatness, and as proceeding from the inability of the government to continue the administration of public affairs without his countenance and direction. Without dreaming that any man in Scotland would be so bold as to attack him, even single or unarmed, he answered the letters of the chancellor and governor, by assuring them that he intended to set out for Edinburgh: the chancellor, on pretence of doing him honour, but in reality to quiet his suspicions, met him while he was on his journey; and inviting him to his castle of Crichton, he there entertained him for some days with the greatest magnificence and appearance of hospitality. The earl of Douglas believed all the chancellor's professions of friendship, and even sharply checked the wisest of his followers, who counselled him not to depend too much on appearances, or to trust his brother and himself at the same time in any place where the chancellor had power. The latter had not only removed the earl's suspicion, but had made him a kind of convert to patriotism, by painting to him the miseries of his country, and the glory that must redound to him and his friends in removing them. It was in vain for his attendants to remind him of his father's maxim, never to risk himself and his brother at the same time: he without hesitation attended the chancellor to Edinburgh; and being admitted into the castle, they dined at the same table with the king. Towards the end of the entertainment, a bull's head, the certain prelude of immediate death, was served up. The earl and his brother started to their feet, and endeavoured to make their escape: but armed men rushing in, overpowered them, and tying their hands and those of Sir Malcolm Fleming with cords, they were carried to the hill and beheaded. The young king endeavoured with tears to procure their pardon; for which he was severely checked by his unrelenting chancellor.

297 Is put to death with his brother.

In 1443, the king being arrived at the age of 14, declared himself out of the years of minority, and took upon himself the administration of affairs. He appears to have been a prince of great spirit and resolution; and he had occasion for it. He had appointed one Robert Sempil of Fulwood to be chief governor of the castle of Dumbarton; but he was killed by one Galbraeth (a noted partizan of the earl of Douglas), who seized upon the government of the castle. The popularity of the family of Douglas having somewhat subsided, and the young earl finding himself not supported by the chief branches of his family, he began to think, now that the king was grown up, his safest course would be to return to his duty. He accordingly repaired to the king at Stirling; and voluntarily throwing himself at his majesty's feet, implored his pardon for all his transgressions, and solemnly promised that he would ever after set a pattern of duty and loyalty to all the rest of his subjects. The king, finding that he insisted on no terms but that of pardon, and that he had unconditionally put himself into his power, not only granted his request, but made him the partner of his inmost councils.

298 The young earl submits to the king, and is received into favour.

James had always disliked the murder of the earl of Douglas and his brother; and the chancellor, perceiving the ascendency which this earl was daily gaining at court, thought it high time to provide for his own safety. He therefore resigned the great seal, and retired to the castle of Edinburgh, the custody of which he pretended had been granted to him by the late king during his life, or till the present king should arrive at the age of 21; and prepared it for a siege. The lord Callendar, who knew himself equally obnoxious as Crichton was to the earl of Douglas, and that he could not maintain his footing by himself, resigned likewise all his posts, and retired to one of his own houses, but kept possession of the castle of Stirling. As both that and the castle of Edinburgh were royal forts, the two lords were summoned to surrender them; but instead of complying, they justified their conduct by the great power of their enemies, who sought their destruction, and who had been so lately at the head of robbers and outlaws; but promised to surrender themselves to the king as soon as he was of lawful age, (meaning, we suppose, either 18 or 21). This answer being deemed

299 Great disturbances in Scotland.

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Scotland. contumacious, the chancellor and the late governor, with his two ſons Sir Alexander and Sir James Livingſton, were proclaimed traitors in a parliament which was ſummoned on purpoſe to be held at Stirling. In another parliament held at Perth the ſame year, an act paſſed. that all the lands and goods which had belonged to the late king ſhould be poſſeſſed by the preſent king to the time of his lawful age, which is not ſpecified. This act was levelled againſt the late governor and chancellor, who were accuſed of having alienated to their own uſes, or to thoſe of their friends, a great part of the royal effects and jewels; and their eſtates being confiſcated, the execution of the ſentence was committed to John Forreſter of Corſtorphin, and other adherents of the earl of Douglas.

This ſentence threw all the nation into a flame. The caſtle of Crichton was beſieged; and being ſurrendered upon the king's ſummons and the diſplay of the royal banner, it was levelled with the ground. It ſoon appeared that the governor and chancellor, the latter eſpecially, had many friends; and in particular Kennedy biſhop of St Andrew's, nephew to James the firſt, who ſided with them from the dread and hatred they bore to the earl of Douglas and his family. Crichton thus ſoon found himſelf at the head of a body of men; and while Forreſter was carrying fire and ſword into his eſtates and thoſe of the late governor, his own lands and thoſe of the Douglaſſes were overrun. Corſtorphin, Abercorn, Blackneſs, and other places, were plundered; and Crichton carried off from them more booty than he and his adherents had loſt. Particular mention is made of a fine breed of mares which Douglas had loſt on this occaſion. That nobleman was ſo much exaſperated by the great damages he had ſuſtained, that he engaged his friends the earl of Crawford and Alexander Ogilvy of Innerquharity, to lay waſte the lands of the biſhop of St Andrew's, whom he conſidered as the chief ſupport of the two miniſters. This prelate was not more conſiderable by his high birth, than he was venerable by his virtue and ſanctity; and had, from a principle of conſcience, oppoſed the earl of Douglas and his party. Being conſcious he had done nothing that was illegal, he firſt admoniſhed the earl of Crawford and his coadjutor to deſiſt from deſtroying his lands; but finding his admonitions ineffectual, he laid the earl under an excommunication.

That nobleman was almoſt as formidable in the northern, as the earl of Douglas had been in the ſouthern, parts of Scotland. The benedictine monks of Aberbrothwic, who were poſſeſſed of great property, had choſen Alexander Lindſay, his eldeſt ſon, to be the judge or bailiff of their temporalities; as they themſelves, by their profeſſion, could not ſit in civil or criminal courts. Lindſay proved ſo chargeable, by the great number of his attendants, and his high manner of living, to the monks, that their chapter removed him from his poſt, and ſubſtituted in his place Alexander Ogilvy of Innerquharity, guardian to his nephew John Ogilvy of Airley, who had an hereditary claim upon the bailiwick. This, notwithſtanding their former intimacy, created an irreconcileable difference between the two families. Each competitor ſtrengthened himſelf by calling in the aſſiſtance of his friends; and the Lord Gordon taking part with the Ogilvies, to whom he was then paying a viſit, both parties immediately muſtered in the neighbourhood of Aberbrothwic. The earl of Crawford, who was then at Dundee, immediately poſted to Aberbrothwic, and placing himſelf between the two armies, he demanded to ſpeak with Ogilvy; but, before his requeſt could be granted, he was killed by a common ſoldier, who was ignorant of his quality. His death exaſperated his friends, who immediately ruſhed on their enemies; and a bloody conflict enſued, which ended to the advantage of the Lindſays, that is, the earl of Crawford's party. On that of the Ogilvies were killed Sir John Oliphant of Aberdagy, John Forbes of Pitſligo, Alexander Barclay of Gartley, Robert Maxwel of Teling, Duncan Campbell of Campbelfether, William Gordon of Burrowfield, and others. With thoſe gentlemen, about 500 of their followers are ſaid to have fallen; but ſome accounts diminiſh that number. Innerquharity himſelf, in flying, was taken priſoner, and carried to the earl of Crawford's houſe at Finhaven, where he died of his wounds; but the Lord Gordon (or, as others call him, the earl of Huntley) eſcaped by the ſwiftneſs of his horſe.

This battle ſeems to have let looſe the fury of civil diſcord all over the kingdom. No regard was paid to magiſtracy, nor to any deſcription of men but that of clergy. The moſt numerous, fierceſt, and beſt allied family, wreaked its vengeance on its foes, either by force or treachery; and the enmity that actuated the parties, ſtiffled every ſentiment of honour, and every feeling of humanity. The Lindſays, ſecretly abetted and ſtrengthened by the earl of Douglas, made no other uſe of their victory than carrying fire and ſword through the eſtates of their enemies; and thus all the north of Scotland preſented ſcenes of murder and devaſtation. In the weſt, Robert Boyd of Duchal, governor of Dumbarton, treacherouſly ſurpriſed Sir James Stuart of Achmynto, and treated his wife with ſuch inhumanity, that ſhe expired in three days under her confinement in Dumbarton caſtle. The caſtle of Dunbar was taken by Patrick Hepburn of Hales. Alexander Dunbar diſpoſſeſſed the latter of his caſtle of Hales; but it was retaken by the partiſans of the earl of Douglas, whoſe tenants, particularly thoſe of Annandale, are ſaid to have behaved at that time with peculiar fierceneſs and cruelty. At laſt, the gentlemen of the country, who were unconnected with thoſe robbers and murderers, which happened to be the caſe with many, ſhut themſelves up in their ſeveral houſes; each of which, in thoſe days, was a petty fortreſs, which they victualled, and provided in the beſt manner they could for their own defence. This wiſe reſolution ſeems to have been the firſt meaſure that compoſed the public commotions.

The earl of Douglas, whoſe power and influence at court ſtill continued, was ſenſible that the clergy, with the wiſer and more diſintereſted part of the kingdom, conſidered him as the ſource of the dreadful calamities which the nation ſuffered; and that James himſelf, when better informed, would be of the ſame opinion. He therefore ſought to avail himſelf of the juncture, by forming ſecret but ſtrong connections with the earls of Crawford, Roſs, and other great noblemen, who wanted to ſee their feudal powers reſtored to their full vigour. The queen-dowager and her huſband made little or no figure during this ſeaſon of public confuſion: ſhe

Scotland. had retired to the castle of Dunbar, while it was in Hepburn's possession, where she died soon after. She left by her second husband three sons; John, who in 1455 was made earl of Athol, by his uterine brother the king; James, who under the next reign, in 1469, was created earl of Buchan; and Andrew, who afterwards became bishop of Murray. As the earl of Douglas was an enemy to the queen-dowager's husband, the latter retired to England, where he obtained a pass to go abroad, with 20 in his train; but being taken at sea by the Flemish pirates, he died in his confinement.

The great point between the king and Sir William Crichton, whether the latter should give up the castle to his majesty, remained still undecided; and by the advice and direction of the earl of Douglas, who had been created lord-lieutenant of the kingdom, it had now suffered a nine months siege. Either the strength of the castle, or an opinion entertained by Douglas that Crichton would be a valuable acquisition to his party, procured better terms for the latter than he could otherwise have expected; for he and his followers were offered a full indemnity for all past offences, and a promise was made that he should be restored not only to the king's favour, but to his former post of chancellor. He accepted of the conditions; but refused to act in any public capacity till they were confirmed by a parliament, which was soon after held at Perth, and in which he was restored to his estate and honours. By this reconciliation between Douglas and Crichton, the former was left at full liberty to prosecute his vengeance against the Lord Callendar, the late governor, his friends and family. That vengeance was exercised with rigour. The governor himself, Sir James Dundas of Dundas, and Sir Robert Bruce of Clackmannan, were forced to save their lives by the loss of their estates; but even that could not preserve their liberty, for they were sent prisoners to the castle of Dumbarton. The fate of Alexander, the governor's eldest son, and of two other gentlemen of his name and family, was still more lamentable; for they were condemned to lose their heads. Those severities being inflicted after the king had in a manner readmitted the sufferers into his favour, swelled the public outcry against the earl of Douglas. We have in Lindsay an extract of the speech which Alexander Livingston, one of the most accomplished gentlemen of his time, made upon the scaffold, in which he complained, with great bitterness, of the cruel treatment his father, himself, and his friends, had undergone; and that he suffered by a packed jury of his enemies.

The king being now about 18 years of age, it was thought proper that a suitable consort should be provided for him; and, after various consultations, Mary, the daughter of Arnold duke of Gueldres, was chosen, at the recommendation of Charles king of France, though the marriage was not completed till some time after. This produced an immediate rupture with England. The earls of Salisbury and Northumberland entered Scotland at the head of two separate bodies. The former burnt the town of Dumfries, as the latter did that of Dunbar; while Sir John Douglas of Balveny made reprisals by plundering the county of Cumberland, and burning Alnwic. Upon the return of the English armies to their own country, additional levies were made, and a fresh invasion of Scotland was resolved upon under the earl of Northumberland, who had along with him a lieutenant, whom the Scots of those days, from the bushiness and colour of his beard, called *Magnus with the red mare*. He was a soldier of fortune, but an excellent officer, having been trained in the French wars; and he is said to have demanded no other recompense for his services from the English court, but that he should enjoy all he could conquer in Scotland. The Scots, in the mean time, had raised an army commanded by George Douglas earl of Ormond, and under him by Wallace of Craigie, with the Lords Maxwell and Johnston. The English having passed Solway Frith, ravaged all that part of the country which belonged to the Scots; but hearing that the earl of Ormond's army was approaching, called in their parties, and fixed their camp on the banks of the river Sark. Their advanced guard was commanded by Magnus; their centre by the earl of Northumberland; and the rear, which was composed of Welch, by Sir John Pennington, an officer of courage and experience.

300 Invasion of Scotland by the English.

301 The battle of Sark.

The Scots drew up in three divisions likewise. Their right wing was commanded by Wallace, the centre by the earl of Ormond, and their left wing by the Lords Maxwell and Johnston. Before the battle joined, the earl of Ormond harangued his men, and inspired them with very high resentment against the English, who, he said, had treacherously broken the truce. The signal for battle being given, the Scots under Wallace rushed forward upon their enemies: but, as usual, were received by so terrible a discharge from the English archers, that their impetuosity must have been stopped, had not their brave leader Wallace put them in mind, that their forefathers had always been defeated in distant fights by the English, and that they ought to trust to their swords and spears; commanding them at the same time to follow his example. They obeyed, and broke in upon the English commanded by Magnus, with such fury, as soon fixed the fortune of the day on the side of the Scots, their valour being suitably seconded by their other two divisions. The slaughter (which was the more considerable as both parties fought with the utmost animosity) fell chiefly upon the division commanded by Magnus, who was killed, performing the part of a brave officer; and all his body-guard, consisting of picked soldiers, were cut in pieces.

302 The English entirely defeated.

The battle then became general: Sir John Pennington's division, with that under the earl of Northumberland, was likewise routed; and the whole English army, struck by the loss of their champion, fled towards the Solway, where, the river being swelled by the tide, numbers of them were drowned. The loss of the English in slain amounted to at least 3000 men. Among the prisoners were Sir John Pennington, Sir Robert Harrington, and the earl of Northumberland's eldest son the Lord Percy, who lost his own liberty in forwarding his father's escape. Of the Scots about 600 were killed; but none of note, excepting the brave Wallace, who died three months after of the wounds he had received in this battle. The booty that was made on this occasion is said to have been greater than any that has fallen to the Scots since the battle of Bannockburn

The rest of the history of this reign consists almost entirely of a relation of the cabals and conspiracies of the great men. The earl of Douglas had entered into a

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303 Rebellion of the earl of Douglas and others.

confederacy with the earls of Crawford, Moray, and Rofs, and appeared on all occations with fuch a train of followers as bade defiance to royal power itfelf. This infolence was detefted by the wifer part of the nation; and one Maclellan, who is called the *Tutor of Bomly*, and was nephew to Sir Patrick Gray, captain of the king's guard, refufed to give any attendance upon the earl, or to concur in his meatures, but remained at home as a quiet fubject. This inoffenfive behaviour was by the earl confidered as treafon againft himfelf; and violently feizing upon Maclellan's houfe and perfon, he fent him clofe prifoner to the caftle of Douglas. As Maclellan was a gentleman of great worth and reputation, his uncle Gray applied earneftly to James in his favour; and fuch was that prince's regard for Maclellan, that he wrote and figned a letter for his releafe, addreffed to the earl of Douglas. Upon Gray's delivering this letter to Douglas at his caftle, the latter feemed to receive it with the higheft refpect, and to treat Gray with the greateft hofpitality, by inviting him to dinner; but, in the mean time, he gave private orders that Maclellan's head fhould be ftruck off, and his body expofed upon the green before the caftle covered with a linen cloth. After dinner, the earl told Gray, that he was ready to obey the king's commands; and conducting him to the green, he fhowed him the lifelefs trunk, which he faid Gray might difpofe of as he pleafed. Upon this, Gray mounted his horfe, and trufted to his fwiftnefs for his own fafety; for he was purfued by the earl's attendants to the gates of Edinburgh.

The confpiracy againft James's government was now no longer a fecret. The Lords Balveny and Hamilton, with fuch a number of other barons and gentlemen, had acceded to it, that it was thought to be more powerful than all the force the king could bring into the field. Even Crichton advifed James to diffemble. The confederates entered into a folemn bond and oath never to defert one another during life; and, to make ufe of Drummond's words, "That injuries done to any one of them fhould be done to them all, and be a common quarrel; neither fhould they defift, to their beft abilities, to revenge them: that they fhould concur indifferently againft whatfoever perfons within or without the realm, and fpend their lives, lands, goods, and fortunes, in defence of their debates and differences whatfoever." All who did not enter into this affociation were treated as enemies to the public; their lands were deftroyed, their effects plundered, and they themfelves imprifoned or murdered. Drummond fays, that Douglas was then able to bring 40,000 men into the field; and that his intention was to have placed the crown of Scotland upon his own head. How far he might have been influenced by a fcene of the fame nature that was then paffing between the houfes of York and Lancafter in England, we fhall not pretend to determine; though it does not appear that his intention was to wear the crown himfelf, but to render it defpicable upon his fovereign's head. It is rather evident, from his behaviour, that he did not affect royalty; for when James invited him to a conference in the caftle of Stirling, he offered to comply provided he had a fafe conduct. This condition plainly implied, that he had no reliance upon the late act of parliament, which declared the proclamation of the king's peace to be a fufficient fecurity for life and fortune to all his fubjects; and there is no denying but the fafe conduct was expected in the form and manner required.

304 Interview between king James and earl of Douglas.

This being obtained, the earl began his march towards Stirling with his wonted great retinue; and arrived there on Shrove-Tuefday. He was received by the king as if he had been the heir of his throne, as well as the greateft of his fubjects, and admitted to dine with his majefty in the caftle, while his attendants were difperfed in the town, little fufpecting the catastrophe that followed. The entertainment being over, the king told the earl with an air of frankneffs, "That as he was now of age, he was refolved to be the father of all his people, and to take the government into his own hands; that his lordfhip, therefore, had no reafon to be under any apprehenfions from his old enemies Callendar and Crichton; that there was no occafion to form any confederacies, as the law was ready to protect him; and that he was welcome to the principal direction of affairs under the crown, and to the firft place in the royal confidence; nay, that all former offences done by himfelf and his friends fhould be pardoned and forgot."

This fpeech was the very reverfe of what the earl of Douglas aimed at. It rendered him, indeed, the firft fubject of the kingdom; but ftill he was controulable by the civil law. In fhort, upon the king's peremptorily putting the queftion to him, he not only refufed to diffolve the confederacy, but upbraided the king for his government. This produced a paffionate rejoinder on the part of James; but the earl repreffented that he was under a fafe conduct, and that the nature of his confederacy was fuch, that it could not be broken but by the common confent of all concerned. The king infifted upon his fetting the example; and the earl continuing more and more obftinate, James ftabbed him with his dagger; and armed men rufhing into the room, finifhed the flaughter.

305 The king kills him with his own hand.

After the death of the earl of Douglas, the confederacy came to nothing. The infurgents excufed themfelves as being too weak for fuch an enterprife; and were contented with trailing the fafe conduct at a horfe's tail, and proclaiming, by trumpets and horns, the king a perjured traitor. They proceeded no farther; and each departed to his own habitation, after agreeing to affemble with frefh forces about the beginning of April. James loft no time in improving this fhort refpite; and found the nation in general much better difpofed in his favour than he had reafon to expect. The intolerable oppreffions of the great barons made his fubjects efteem the civil, far preferable to the feudal, fubjection: and even the Douglaffes were divided among themfelves; for the earl of Angus and Sir John Douglas of Dalkeith were among the moft forward of the royalifts. James at the fame time wrote letters to the earl of Huntley, and to all the noblemen of his kingdom who were not parties in the confederacy, befides the ecclefiaftics, who remained firmly attached to his prerogative. Before the effect of thefe letters could be known, the infurgents had returned to Stirling (where James ftill wifely kept himfelf upon the defenfive); repeated their infolences, and the opprobrious treatment of his fafe conduct; and at laft they plundered the town, and laid it in afhes. Being ftill unable to take the caftle, partly through their own divifions, and partly through the diverfity of the operations

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tions they were obliged to ſupply, they left Stirling, and deſtroyed the eſtate of Sir John Douglas of Dalkeith, whom they conſidered as a double traitor, becauſe he was a Douglas and a good ſubject. They then beſieged his caſtle: but it was ſo bravely defended by Patrick Cockburn, a gentleman of the family of Langton, that they raiſed the ſiege; which gave the royal party farther leiſure for humbling them.

All this time the unhappy country was ſuffering the moſt cruel devaſtations; for matters were now come to ſuch extremity, that it was neceſſary for every man to be a royaliſt or a rebel. The king was obliged to keep on the defenſive; and though he had ventured to leave the caſtle of Stirling, he was in no condition to face the rebels in the field. They were in poſſeſſion of all the ſtrong paſſes by which his friends were to march to his aſſiſtance; and he even conſulted with his attendants on the means of eſcaping to France, where he was ſure of an hoſpitable reception. He was diverted from that reſolution by biſhop Kennedy and the earl of Angus, who was himſelf a Douglas, and prevailed upon to wait for the event of the earl of Huntley's attempts for his ſervice. This nobleman, who was deſcended from the Seatons, but by marriage inherited the great eſtates of the Gordons in the north, had raiſed an army for James, to whoſe family he and his anceſtors, by the Gordons as well as the Seatons, had been always remarkably devoted. James was not miſtaken in the high opinion he had of Huntley; and in the mean time he iſſued circular letters to the chief eccleſiaſtics and bodies-politic of his kingdom, ſetting forth the neceſſity he was under to proceed as he had done, and his readineſs to protect all his loyal ſubjects in their rights and privileges againſt the power of the Douglaſſes and their rebellious adherents. Before thoſe letters could have any effect, the rebels had plundered the defenceleſs houſes and eſtates of all who were not in their confederacy, and had proceeded with a fury that turned to the prejudice of their cauſe.

The indignation which the public had conceived againſt the king, for the violation of his ſafe conduct, began now to ſubſide; and the behaviour of his enemies in ſome meaſure juſtified what had happened, or at leaſt made the people ſuſpect that James would not have proceeded as he did without the ſtrongeſt provocation. The forces he had aſſembled being unable, as yet, to act offenſively, he reſolved to wait for the earl of Huntley, who by this time was at the head of a conſiderable army, and had begun his march ſouthwards. He had been joined by the Forbeſes, Ogilvies, Leſlies, Grants, Irvings, and other relations and dependents of his family; but having advanced as far as Brechin, he was oppoſed by the earl of Crawford, the chief ally of the earl of Douglas, who commanded the people of Angus, and all the adherents of the rebels in the neighbouring counties, headed by foreign officers. The two armies joining battle on the 18th of May, victory was for ſome time in ſuſpence; till one Coloſs of Bonnymoon, on whom Crawford had great dependence, but whom he had imprudently diſobliged, came over to the royaliſts with the diviſion he commanded, which was the beſt armed part of Crawford's army, conſiſting of battle-axes, broad-ſwords, and long ſpears. His defection gave the fortune of the day to the earl of Huntley, as it left the centre flank of Crawford's army entirely expoſed to the royaliſts. He himſelf loſt one of his brothers; and fled with another, Sir John Lindſay, to his houſe at Finhaven, where it is reported that he broke out into the following ejaculation: "That he would be content to remain ſeven years in hell, to have in ſo timely a ſeaſon done the king his maſter that ſervice the earl of Huntly had performed, and carry that applauſe and thanks he was to receive from him."

306 Battle of Brechin, where the rebels are defeated.

No author informs us of the loſs of men on either ſide, though all agree that it was very conſiderable upon the whole. The earl of Huntley, particularly, loſt two brothers, William and Henry; and we are told, that, to indemnify him for his good ſervices, as well as for the rewards and preſents he had made in lands and privileges to his faithful followers, the king beſtowed upon him the lands of Badenoch and Lochaber.

307 The rebellion ſuppreſſed.

The battle of Brechin was not immediately deciſive in favour of the king, but proved ſo in its conſequences. The earl of Moray, a Douglas likewiſe, took advantage of Huntley's abſence to haraſs and ravage the eſtates of all the royaliſts in the north; but Huntley returning from Brechin with his victorious army, drove his enemy into his own county of Moray, and afterwards expelled him even from thence. James was now encouraged, by the advice of his kinſman Kennedy biſhop of St Andrew's, to whoſe firmneſs and prudence he was under great obligations, to proceed againſt the rebels in a legal manner, by holding a parliament at Edinburgh, to which the confederated lords were ſummoned; and upon their non-compearance, they were ſolemnly declared traitors. This proceeding ſeemed to make the rebellion rage more fiercely than ever; and at laſt, the confederates, in fact, diſowned their allegiance to James. The earls of Douglas, Crawford, Ormond, Moray, the Lord Balveny, Sir James Hamilton, and others, ſigned with their own hands public manifeſtoes, which were paſted on the doors of the principal churches, importing, "That they were reſolved never to obey command or charge, nor anſwer citation for the time coming; becauſe the king, ſo far from being a juſt maſter, was a bloodſucker, a murderer, a tranſgreſſor of hoſpitality, and a ſurpriſer of the innocent." It does not appear that thoſe and the like atrocious proceedings did any ſervice to the cauſe of the confederates. The earl of Huntley continued victorious in the north; where he and his followers, in revenge for the earl of Moray's having burnt his caſtle of Huntley, ſeized or ravaged all that nobleman's great eſtate north of the Spey. When he came to the town of Forres, he burnt one ſide of the town, becauſe it belonged to the earl, and ſpared the other, becauſe it was the property of his own friends. James thought himſelf, from the behaviour of the earl of Douglas and his adherents, now warranted to come to extremities; and marching into Annandale, he carried fire and ſword through all the eſtates of the Douglaſſes there. The earl of Crawford, on the other hand, having now recruited his ſtrength, deſtroyed the lands of all the people of Angus and of all others who had abandoned him at the battle of Brechin; though there is reaſon to believe, that he had already ſecretly reſolved to throw himſelf upon the king's mercy.

308 Aſſociation againſt the king by the earls of Douglas, Crawford, &c.

Nothing but the moſt obſtinate pride and reſentment could have prevented the earl of Douglas, at this time, from taking the advice of his friends, by returning to his

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his duty; in which case, James had given sufficient intimations that he might expect pardon. He coloured his contumacy with the specious pretext, that his brother's fate, and those of his two kinsmen, sufficiently instructed him never to trust to James or his ministers; that he had gone too far to think now of receding; and that kings, when once offended, as James had been, never pardoned in good earnest. Such were the chief reasons, with others of less consequence, which Drummond has put into the mouth of Douglas at this time. James, after his expedition into Annandale, found the season too far advanced to continue his operations; and returning to Edinburgh, he marched northwards to Angus, to reduce the earl of Crawford, who was the second rebel of power in the kingdom. That nobleman had hitherto deferred throwing himself at the king's feet, and had resumed his arms, in the manner related, only in hopes that better terms might be obtained from James for himself and his party. Perceiving that the earl of Douglas's obstinacy had cooled some other lords of the confederacy, and had put an end to all hopes of a treaty, he resolved to make a merit of breaking the confederacy, by being the first to submit. James having arrived in Angus, was continuing his march through the country, when the earl and some of his chief followers fell on their knees before him on the road, bareheaded and barefooted. Their dreary looks, their suppliant postures, and the tears which streamed abundantly from the earl, were expressive of the most abject contrition; which was followed by a penitential speech made by the earl, acknowledging his crimes, and imploring forgiveness.

309 Broken by the earl of Crawford.

James was then attended by his chief counsellors, particularly bishop Kennedy, who, he resolved, should have some share in the favour he meant to extend to the earl. He asked their advice; which proving to be on the merciful side, James promised to the earl and his followers restitution of all their estates and honours, and full pardon for all that had passed. The earl, as a grateful retribution for this favour, before the king left Angus, joined him with a noble troop of his friends and followers; and, attending him to the north, was extremely active in suppressing all the remains of the rebellion there.

310 Who is received into favour.

The submission of the earl of Crawford was followed by that of the earl of Douglas; which, however, continued only for a short time. This powerful nobleman soon resumed his rebellious practices; and, in the year 1454, raised an army to fight against the king. The king erected his standard at St Andrew's; marched from thence to Falkland; and ordered all the forces of Fife, Angus, and Strathern, with those of the northern parts, to rendezvous by a certain day at Stirling; which they did to the number of 30,000. Douglas assembled his forces, which amounted to 40,000, some say 60,000 men, on the south side of the river Carron, about half way between Stirling and Abercorn. However, notwithstanding this superiority of force, the earl did not think it proper to fight his sovereign. Bishop Kennedy, the prelate of St Andrew's, had advised the king to divide his enemies by offering them pardon separately; and so good an effect had this, that in a few days the earl found himself deserted by all his numerous army, excepting about 100 of his nearest friends and domestics, with whom he retired towards England. His friends had indeed advised him to come to a battle immediately; but the earl, for reasons now unknown, refused. However, in his journey southward, he raised a considerable body of forces, consisting of his own tenants, of outlaws, robbers, and borderers, with whom he renewed his depredations on the loyal subjects of the king. He was opposed by the earl of Angus, who, though of the name of Douglas, continued firm in the royal cause. An engagement ensued at Ancram-muir; where Douglas was entirely defeated, and he himself with great difficulty escaped to an adjacent wood. What his fate was after this battle does not appear; but it is certain that his estates were afterwards forfeited to the king.

311 Earl Douglas submits, but rebels again.

312 He is entirely defeated.

The rest of the reign of James II. was spent in making proper regulations for the good of his people. In 1460 he was killed at the siege of Roxburgh castle, by the bursting of a cannon, to which he was too near when it was discharged. This siege he had undertaken in favour of the queen of England, who, after losing several battles, and being reduced to distress, was obliged to apply to James for relief. The nobility who were present concealed his death, for fear of discouraging the soldiers; and in a few hours after, the queen appeared in the camp, and presented her young son, James III. as their king.

313 King James II. killed by accident.

James III. was not quite seven years of age at his accession to the crown. The administration naturally devolved on his mother; who pushed the siege of Roxburgh castle with so much vigour, that the garrison was obliged to capitulate in a few days; after which the army ravaged the country, and took and dismantled the castle of Wark.—In 1466, negociations were begun for a marriage between the young king and Margaret princess of Denmark; and, in 1468, the following conditions were stipulated. 1. That the annual rent hitherto paid for the northern Isles of Orkney and Shetland should be for ever remitted and extinguished. 2. That king Christiern, then king of Denmark, should give 60,000 florins of gold for his daughter's portion, whereof 10,000 should be paid before her departure from Denmark; and that the islands of Orkney should be made over to the crown of Scotland, by way of pledge for the remainder; with this express proviso, that they should return to that of Norway after complete payment of the whole sum. 3. That king James should, in case of his dying before the said Margaret his spouse, leave her in possession of the palace of Linlithgow and castle of Down in Menteith, with all their appurtenances, and the third part of the ordinary revenues of the crown, to be enjoyed by her during life, in case she should choose to reside in Scotland. 4. But if she rather chose to return to Denmark, that in lieu of the said liferent, palace, and castle, she should accept of 12,000 florins of the Rhine; from which sum the 50,000 due for the remainder of her portion being deduced and allowed, the islands of Orkney should be reannexed to the crown of Norway as before.

314 James III.

315 Marriage-treaty with the princess of Denmark.

When these articles were agreed upon, Christiern found himself unable to fulfil his part of them. Being at that time engaged in an unsuccessful war with Sweden, he could not advance the 10,000 florins which he had promised to pay down as part of his daughter's fortune. He was therefore obliged to apply to the plenipotentiaries to accept of 2000, and to take a farther mort-

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316 Disgrace of the earl of Arran's family.

mortgage of the isles of Shetland for the other 8000. The Scottish plenipotentiaries, of whom Boyd earl of Arran was one, gratified him in his request; and this concession is thought to have proved fatal to the earl. Certain it is, that his father was beheaded for treasonable practices alleged to have been committed long before, and for which he produced a parliamentary indemnity to no purpose: the earl himself was divorced from his wife the king's sister, and obliged to live in perpetual exile, while the countess was married to another.

317 Beginning of James's misfortunes.

In 1476, those misfortunes began to come on James which afterwards terminated in his ruin. He had made his brother, the duke of Albany, governor of Berwick; and had entrusted him with very extensive powers upon the borders, where a violent propensity for the feudal law still continued. The Humes and the Hepburns, then the most powerful subjects in those parts, could not brook the duke of Albany's greatness, especially after he had forced them, by virtue of a late act, to part with some of the estates which had been inconsiderately granted them in this and the preceding reign.

318 Is infatuated with the belief of astrology.

The pretended science of judicial astrology, by which James happened to be incredibly infatuated, was the easiest as well as most effectual engine that could work their purposes. One Andrew, an infamous impostor in that art, had been brought over from Flanders by James; and he and Schevez, then archbishop of St Andrew's, concurred in persuading James that the Scotch lion was to be devoured by his own whelps; a prediction that, to a prince of James's turn, amounted to a certainty.

The condition to which James reduced himself by his belief in judicial astrology, was truly deplorable. The princes upon the continent were smitten with the same infatuation; and the wretches who besieged his person had no safety but by continuing the delusion in his mind. According to Lindsay, Cochran, who had some knowledge of architecture, and had been introduced to James as a master-mason, privately procured an old woman, who pretended to be a witch, and who heightened his terrors by declaring that his brothers intended to murder him. James believed her; and the unguarded manner in which the earl of Mar treated his weakness, exasperated him so much, that the earl giving a farther loose to his tongue in railing against his brother's unworthy favourites, was arrested, and committed to the castle of Craig Miller; from whence he was brought to the Canongate, a suburb of Edinburgh, where he suffered death.

319 Death of the King's brother the earl of Mar.

320 Duke of Albany arrested, but escapes.

The duke of Albany was at the castle of Dunbar when his brother the earl of Mar's tragedy was acted; and James could not be easy without having him likewise in his power. In hopes of surprising him, he marched to Dunbar: but the duke, being apprized of his coming, fled to Berwick, and ordered his castle of Dunbar to be surrendered to the lord Evendale, though not before the garrison had provided themselves with boats and small vessels, in which they escaped to England. He ventured to come to Edinburgh; where James was so well served with spies, that he was seized, and committed close prisoner to the castle, with orders that he should speak with none but in the presence of his keepers. The duke had probably suspected and provided against this disagreeable event; for we are told that he had agents, who every day repaired to the castle, as if they had come from court, and reported the state of matters between him and the king, while his keepers were present, in so favourable a light, that they made no doubt of his soon regaining his liberty, and being readmitted to his brother's favour. The seeming negociation, at last, went so prosperously on, that the duke gave his keepers a kind of a farewell entertainment, previous to his obtaining a formal deliverance; and they drank so immoderately, that being intoxicated, they gave him an opportunity of escaping over the castle wall, by converting the sheets of his bed into a rope. Whoever knows the situation of that fortress, must be amazed at the boldness of this attempt; and we are told that the duke's valet, the only domestic he was allowed to have, making the experiment before his master, broke his neck: upon which the duke, lengthening the rope, slid down unhurt; and carrying his servant on his back to a place of safety, he went on board a ship which his friends had provided, and escaped to France.

In 1482, the king began to feel the bad consequences of taking into his favour men of worthless characters, which seems to have been one of this prince's pernicious foibles. His great favourite at this time was Cochran, whom he had raised to the dignity of earl of Mar. All historians agree that this man made a most infamous use of his power. He obtained at last a liberty of coinage, which he abused so much as to endanger an insurrection among the poor people; for he issued a base coin, called *black money* by the common people, which they refused to take in payments. This favourite's skill in architecture had first introduced him to James; but he maintained his power by other arts: for, knowing that his master's predominant passion was the love of money, he procured it by the meanest and most oppressive methods. James, however, was inclined to have relieved his people by calling in Cochran's money; but he was diverted from that resolution, by considering that it would be agreeable to his old nobility. Besides Cochran, James had other favourites whose professions rendered them still less worthy of the royal countenance; James Hommil a taylor, Leonard a blacksmith, Torsifan a dancing-master, and some others. The favour shown to these men gave so much offence to the nobility, that, after some deliberation, they resolved to remove the king, with some of his least exceptionable domestics (but without offering any violence to his person) to the castle of Edinburgh; but to hang all his worthless favourites over Lawder bridge, the common place of execution. Their deliberation was not kept so secret as not to come to the ears of the favourites; who suspecting the worst, wakened James before day-break, and informed him of the meeting. He ordered Cochran to repair to it, and to bring him an account of its proceedings (L). According to Lindsay,

321 Cochran, the king's great favourite.

(L) Lindsay's description of this upstart's magnificence is very particular, and may serve to give the reader an idea of the finery of that age. "Cochran (says he), the earl of Mar, came from the king to the council (which

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322 He is seized and put to death

say, who seems to have had very minute information as to this event, Cochran rudely knocked at the door of the church, just after the assembly had finished their consultation; and upon Sir Robert Douglas of Lochleven (who was appointed to watch the door) informing them that the earl of Mar demanded admittance, the earl of Angus ordered the door to be thrown open; and rushing upon Cochran, he pulled a massy gold chain from his neck, saying, that a rope would become him better; while Sir Robert Douglas stripped him of a costly blowing horn he wore by his side, as was the manner of the times, telling him he had been too long the hunter of mischief. Cochran, with astonishment, asked them whether they were in jest or earnest; but they soon convinced him they were in earnest, by pinioning down his arms with a common halter till he should be carried to execution.

323 With others of the king's favourites.

The earl of Angus, with some of the chief lords, attended by a detachment of troops, then repaired to the king's tent, where they seized his other favourites, Thomas Preston, Sir William Rogers, James Hommil, William Torfifan, and Leonard: and upbraided James himself, in very rude terms, with his misconduct in government, and even in private life, in not only being counselled by the above minions, but for keeping company with a lady who was called the *Daisy*. We know of no resistance made by James. He only interceded for the safety of a young gentleman, one John Ramsay of Balmain. Cochran, with his other worthless favourites, were hanged over Lawder-bridge before his eyes; and he himself was conducted, under an easy restraint, to the castle of Edinburgh.

324 James confined in the castle of Edinburgh.

James, though confined, behaved with great spirit; and even refused to pardon those who had confined him, or who had any hand in the execution at Lawder. At last, however, he was relieved by the duke of Albany, who, at the queen's desire, undertook to deliver her husband from confinement. This he accomplished, as some say, by surprising the castle of Edinburgh; though, according to others, the gates were opened, upon a formal requisition made for that purpose by two heralds at arms. After he had obtained his liberty, the king repaired to the abbey of Holyroodhouse with his brother, who now acted as his first minister. All the lords who were near the capital came to pay him their compliments; but James was so much exasperated at what had happened, that he committed 16 of them prisoners to the castle of Edinburgh. After his release, James granted a patent to the citizens of Edinburgh, and enlarged their privileges.

325 Relieved by the duke of Albany.

325 Secret negociations with Henry VII. of England.

In 1487, James finished some secret negociations in which he had engaged with Henry king of England some time. The principal articles agreed on between the two monarchs were, That king James's second son should marry Catherine the third daughter of Edward IV. and sister to the princess Elizabeth, now queen of England; and that James himself, who was now a widower, should marry queen Elizabeth. A third marriage was also to be concluded between the duke of Rothesay and another daughter of Edward IV. That in order to these treaties, and for ending all controversies concerning the town of Berwick, which the king of Scotland desired so much to possess, a congress should be held the ensuing year.

326 A powerful confederacy formed against the king.

But in the mean time a most powerful confederacy was formed against the king; the origin of which was as follows. James was a great patron of architecture; and being pleased with the situation of Stirling castle, he resolved to give it all the embellishments which that art could bestow; and about this time he made it the chief place of his residence. He raised within it a hall, which at that time was deemed a noble structure; and a college, which he called the chapel-royal. This college was endowed with an archdean who was a bishop, a subdean, a treasurer, a chanter and subchanter, with a double set of other officers usually belonging to such institutions. The expences necessary for maintaining these were considerable, and the king had resolved to assign the revenues of the rich priory of Coldingham for that purpose. This priory had been generally held by one of the name of Hume; and that family, through length of time, considered it as their property: they therefore strongly opposed the king's intention. The dispute seems to have lasted some years: for the former parliament had passed a vote, annexing the priory to the king's chapel-royal; and the parliament of this year had passed a statute, strictly prohibiting all persons, spiritual and temporal, to attempt any thing, directly or indirectly, contrary or prejudicial to the said union and annexation. The Humes resented their being stripped of so gainful a revenue, the loss of which affected most of the gentlemen of that name; and they united themselves with the Hepburns, another powerful clan in that neighbourhood, under the lord Hales. An association was soon formed; by which both families engaged to stand by each other, and not to suffer any prior to be received for Coldingham, if he was not of one of their surnames. The lords Gray and Drummond soon joined the association; as did many other noblemen and gentlemen, who had their particular causes of discontent. Their agents gave out, that the king was grasping at arbitrary power; that he had acquired his popularity by deep hypocrisy; and that he was resolved to be signally revenged upon all who had any hand in the execution at Lawder. The earl of Angus, who was the soul of the confederacy, advised the conspirators to apply to the old earl of Douglas to head them: but that nobleman was now dead to all ambition, and instead of

327 Owing to a quarrel with the family of Hume.

(which council was holden in the kirk of Lawder for the time), who was well accompanied with a band of men of war, to the number of 300 light axes, all clad in white livery, and black bends thereon, that they might be known for Cochran the earl of Mar's men. Himself was clad in a riding-pie of black velvet, with a great chain of gold about his neck, to the value of 500 crowns; and four blowing horns, with both the ends of gold and silk, set with precious stones. His horn was tipped with fine gold at every end, and a precious stone, called a *beryl*, hanging in the midst. This Cochran had his heumont borne before him, overgilt with gold; so were all the rest of his horns; and all his pallions (pavilions or tents) were of fine canvas of silk, and the cords thereof fine twined silk; and the chains upon his pallions were double overgilt with gold."

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of encouraging the conſpirators, he pathetically exhorted them to break off all their rebellious connections, and return to their duty; expreſſing the moſt ſincere contrition for his own paſt conduct. Finding he could not prevail with them, he wrote to all the numerous friends and deſcendants of his family, and particularly to Douglas of Cavers, ſheriff of Teviotdale, diſſuading them from entering into the conſpiracy; and ſome of his original letters to that effect are ſaid to be ſtill extant. That great man ſurvived this application but a ſhort time; for he died without iſſue at Lindores, on the 15th of April 1488; and in him ended the firſt branch of that noble and illuſtrious houſe. He was remarkable for being the moſt learned of all the Scots nobility, and for the comelineſs of his perſon.

328 Extinction of one of the branches of the family of Douglas.

James appears to have been no ſtranger to the proceedings of the conſpirators: but though he dreaded them, he depended upon the protection of the law, as they did upon his puſillanimity. His degeneracy in this reſpect is remarkable. Deſcended from a race of heroes, he was the firſt of his family who had been branded with cowardice. But his conduct at this time fully juſtifies the charge. Inſtead of vigorouſly ſupporting the execution of the laws in his own perſon, he ſhut himſelf up in his beloved caſtle of Stirling, and raiſed a body guard; the command of which he gave to the lord Bothwel, maſter of his houſehold. He likewiſe iſſued a proclamation, forbidding any perſon in arms to approach the court; and Bothwel had a warrant to ſee the ſame put into execution. Though the king's proceedings in all this were perfectly agreeable to law, yet they were given out by his enemies as ſo many indications of his averſion to the nobility, and ſerved only to induce them to parade, armed, about the country in more numerous bodies.

329 Puſillanimous behaviour of James.

The connections entered into by James with Henry alarmed the conſpirators, and made them reſolve to ſtrike the great blow before James could avail himſelf of an alliance that ſeemed to place him above all oppoſition either abroad or at home. The acquiſition of Berwick to the crown of Scotland, which was looked upon to be as good as concluded; the marriage of the duke of Rotheſay with the daughter of the dowager and ſiſter to the conſort-queen of England; and, above all, the ſtrict harmony which reigned between James and the ſtates of his kingdom, rendered the conſpirators in a manner deſperate. Beſides the earl of Angus, the earls of Argyle and Lenox favoured the conſpirators; for when the whole of James's convention with England is conſidered, and compared with after-events, nothing can be more plain, than that the ſucceſs of the conſpirators was owing to his Engliſh connections; and that they made uſe of them to affirm, that Scotland was ſoon to become a province of England, and that James intended to govern his ſubjects by an Engliſh force.—Thoſe ſpecious allegations did the conſpirators great ſervice, and inclined many, even of the moderate party, to their cauſe. They ſoon took the field, appointed their rendezvouſes, and all the ſouth of Scotland was in arms. James continued to rely upon the authority of his parliament; and ſummoned, in the terms of law, the inſurgents to anſwer at the proper tribunals for their repeated breaches of the peace. The conſpirators, far from paying any regard to his citations, tore them in pieces, buffeted and otherwiſe maltreated the meſſengers, and ſet the laws of their country at open defiance. Even north of the Forth, the heads of the houſes of Gray and Drummond ſpread the ſpirit of diſaffection through the populous counties of Fife and Angus; but the counties north of the Grampians continued firm in their duty.

330 Is ſet at defiance by the conſpirators.

The duke of Rotheſay was then a promiſing youth about fifteen years of age; and the ſubjecting the kingdom of Scotland to that of England being the chief, if not the only cauſe urged by the rebels for their appearing in arms, they naturally threw their eyes upon that prince, as his appearance at their head would give ſtrength and vigour to their cauſe; and in this they were not deceived. James, in the mean time, finding the inhabitants of the ſouthern provinces were either engaged in the rebellion, or at beſt obſerved a cold neutrality, embarked on board of a veſſel which was then lying in the frith of Forth, and paſſed to the north of that river, not finding it ſafe to go by land to Stirling. Arriving at the caſtle, he gave orders that the duke of Rotheſay (as foreſeeing what afterwards happened) ſhould be put under the care of one Schaw of Sauchie, whom he had made its governor, charging him not to ſuffer the prince upon any account to depart out of the fort. The rebels giving out that James had fled to Flanders plundered his equipages and baggage before they paſſed the Forth; and they there found a large ſum of money, which proved to be of the utmoſt conſequence to their affairs. They then ſurpriſed the caſtle of Dunbar, and plundered the houſes of every man to the ſouth of the Forth whom they ſuſpected to be a royaliſt.

331 The duke of Rotheſay put into confinement.

332 Succeſs of the rebels.

James was all this time making a progreſs, and holding courts of juſtice, in the north, where the great families were entirely devoted to his ſervice, particularly the earls of Huntley, Errol, and Marſhal.—Every day brought him freſh alarms from the ſouth, which left him no farther room either for delay or deliberation. The conſpirators, notwithſtanding the promiſing appearance of their affairs, found, that in a ſhort time their cauſe muſt languiſh, and their numbers dwindle, unleſs they were furniſhed with freſh pretexts, and headed by a perſon of the greateſt authority. While they were deliberating who that perſon ſhould be, the earl of Angus boldly propoſed the duke of Rotheſay; and an immediate application was made to Schaw, the young prince's governor, who ſecretly favoured their cauſe, and was prevailed upon by a conſiderable ſum of money to put the prince into their hands, and to declare for the rebels.

333 They are headed by the duke of Rotheſay.

James having ordered all the force in the north to aſſemble, hurried to Perth (then called St John's town), where he appointed the rendezvous of his army, which amounted to 30,000 men. Among the other noblemen who attended him was the famous lord David Lindſay of the Byres (an officer of great courage and experience, having long ſerved in foreign countries), who headed 3000 foot and 1000 horſe, moſtly raiſed in Fifeſhire. Upon his approaching the king's perſon, he preſented him with a horſe of remarkable ſpirit and beauty, and informed his majeſty, that he might truſt his life to his agility and ſure-footedneſs. The lord Ruthven, who was ſheriff of Strathern, and anceſtor (if we miſtake not) to the unfortunate earls of Gowry, joined James at the head of 3000 well armed men.—

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334 James assembles his army.

The whole army being assembled, James proceeded to Stirling; but he was astonished, when he was not only denied entrance into the castle, but saw the guns pointed against his person, and understood, for the first time, that his son was at the head of the rebels. Schaw pretended that the duke of Rothesay had been carried off against his will: but the king's answer was, "Fye, traitor, thou hast deceived me; and if I live I shall be revenged on thee, and thou shalt be rewarded as thou hast served." James lay that night in the town of Stirling, where he was joined by all his army; and understanding that the rebels were advancing, he formed his line of battle. The earl of Athol his uncle, who was trusted by both parties, proposed an accommodation; which was accordingly effected, if we are to believe Abercromby and other historians; but we know not the terms, for none are mentioned on either side.—James is said to have failed on his part; but had there been any grounds for such a charge against him, there can scarcely be a doubt but that the rebels would have published them. That a treaty was entered into is past dispute; and the earl of Athol surrendered himself as a hostage into the hands of the rebels.

James was sensible of the advantage which public clamour gave to his enemies; and he applied to the kings of France and England, and the pope, for their interposition. His holiness named Adrian de Castello for his nuncio on that occasion; and the two kings threatened to raise troops for the service of James.—He, by a fatality not uncommon to weak princes, left the strong castle of Edinburgh, where he might have been in safety till his friends, who had dispersed themselves upon the faith of the late negociation, could be reassembled; and crossing the Forth, he made another attempt to be admitted into the castle of Stirling; but was disappointed, and informed that the rebels were at Torwood in the neighbourhood, and ready to give him battle. He was in possession of the castle of Blackness; his admiral, Wood, commanded the Forth; and his loyal subjects in the north were upon their march to join him. Hawthornden says, that the rebels had made a show of dismissing their troops, that they might draw James into the field; and that while he remained at Blackness, he was attended by the earls of Montrose, Glencairn, and the lords Maxwell and Ruthven. To give his northern troops time to join him, he proposed a negociation; but that was soon at an end, upon the rebels peremptorily requiring him to resign his crown to his son, that is, to themselves.

335 Is required by the rebels to resign his crown.

The rebels had been inured to war. They consisted chiefly of borderers, well armed and disciplined; in which they had the advantage of the king's Lowland subjects, who had not been accustomed to arms. What the numbers on both sides were does not clearly appear; but it is probable that the forces of James were superior to the rebels. They were then at Falkirk; but they soon passed the Carron, encamped above the bridge near Torwood, and made such dispositions as rendered a battle unavoidable, unless James would have dispersed his army, and gone on board Wood's ships: but he did not know himself, and resolved on a battle. He was encamped at a small brook named Sauchie-burn, near the same spot of ground where the great Bruce had defeated the English under Edward the second. The earl of Menteith, the lords Erskine, Graham, Ruthven, and Maxwell, commanded the first line of the king's army. The second was commanded by the earl of Glencairn, who was at the head of the Westland and Highland men. The earl of Crawford, with the lord Boyd and Lindsay of Byres, commanded the rear, wherein the king's main strength consisted, and where he himself appeared in person, completely armed, and mounted upon the fine horse which had been presented to him by Lindsay.

336 Comes to a battle with them.

The first line of the royalists obliged that of the rebels to give way; but the latter being supported by the Annandale men and borderers, the first and second line of the king's army were beat back to the third. The little courage James possessed had forsaken him at the first onset; and he had put spurs to his horse, intending to gain the banks of the Forth, and to go on board one of Wood's ships. In passing through the village of Bannockburn, a woman who was filling her pitcher at the brook, frightened at the sight of a man in armour galloping full speed, left it behind her; and the horse taking fright, the king was thrown to the ground, and carried, bruised and maimed, by a miller and his wife, into their hovel. He immediately called for a priest to make his confession; and the rustics demanding his name and rank, "I was (said he incautiously) your king this morning." The woman, overcome with astonishment, clapped her hands, and running to the door called for a priest to confess the king. "I am a priest (said one passing by), lead me to his majesty." Being introduced into the hovel, he saw the king covered with a coarse cloth; and kneeling by him, he asked James whether he thought he could recover, if properly attended by physicians? James answering in the affirmative, the villain pulled out a dagger, and stabbed him to the heart. Such is the dark account we are able to give of this prince's unhappy end. The name of the person who murdered him is said to have been Sir Andrew Borthwick, a priest, one of the pope's knights. Some pretend that the lord Gray, and others that Robert Stirling of Keir, was the regicide; and even Buchanan (the tenor of whose history is a justification of this murder), is uncertain as to the name of the person who gave him the fatal blow.

337 Abandons his army, and flies.

338 Is overwn from his horse, and murdered.

It is probable that the royalists lost the battle thro' the cowardice of James. Even after his flight his troops fought bravely; but they were damped on receiving the certain accounts of his death. The prince, young as he was, had an idea of the unnatural part he was acting, and before the battle he had given a strict charge for the safety of his father's person. Upon hearing that he had retired from the field, he sent orders that none should pursue him; but they were ineffectual, the rebels being sensible that they could have no safety but in the king's death. When that was certified, hostilities seemed to cease; nor were the royalists pursued. The number of slain on both sides is uncertain; but it must have been considerable, as the earl of Glencairn, the lords Sempil, Erskine, and Ruthven, and other gentlemen of great eminence, are mentioned. As to the duke of Rothesay, who was now king, he appeared inconsolable when he heard of his father's death; but the rebels endeavoured to efface his grief, by the profusion of honours they paid him when he was recognized as king.

339 Grief of his son for his death.

The remorse and anguish of the young king, on reflecting

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flecting upon the unnatural part he had acted, was inexpressible; and the noblemen who had been engaged in the rebellion became apprehensive for their own safety. The catastrophe of the unfortunate James III. however, was not yet become public; and it was thought by many that he had gone aboard some of the ships belonging to the Scottish admiral Sir Andrew Wood. James, willing to indulge hope as long as it was possible, desired an interview with the admiral; but the latter refused to come on shore, unless he had sufficient hostages for his safety. These being delivered, Sir Andrew waited upon the king at Leith. He had again and again, by messages, assured him that he knew nothing of the late king; and he had even offered to allow his ships to be searched: yet such was the anxiety of the new king, that he could not be satisfied till he had examined him in person. Young James had been long a stranger to his father, so that he could not have distinguished him easily from others. When Wood, therefore, entered the room, being struck with his noble appearance, he asked him, "Are you my father?" "I am not," replied Wood, bursting into tears; "but I was your father's true servant, and while I live I shall be the determined enemy of his murderers." This did not satisfy the lords, who demanded whether he knew where the king was. The admiral replied, that he knew not; and upon their questioning him concerning his manœuvres on the day of battle, when his boats were seen plying backwards and forwards, he told them, that he and his brother had determined to assist the king in person; but all they could do was to save some of the royalists in their ships. "I would to God, (says he), my king was there safely, for I would defend and keep him skaithless from all the traitors who have cruelly murdered him: for I think to see the day to behold them hanged and drawn for their demerits." This spirited declaration, and the freedom with which it was delivered, struck the guilty part of the council with dismay; but the fear of sacrificing the hostages procured Wood his freedom, and he was suffered to depart to his ships. When he came on board, he found his brother preparing to hang the two lords who had been left as hostages; which would certainly have been their fate, had the admiral been longer detained.

340 Noble behaviour of Sir Andrew Wood.

Wood had scarcely reached his ships, when the lords, calling the inhabitants of Leith together, offered them a large premium if they would fit out a sufficient force to destroy that bold pirate and his crew, as they called Wood; but the townsmen, who, it seems, did not much care for the service, replied, that Wood's ships were a match for any ten ships that could be fitted out in Scotland. The council then removed to Edinburgh, where James IV. was crowned on the 24th of June 1487.

341 The regicides assemble a parliament.

In the month of October this year, the nobility and others who had been present at the king's coronation, converted themselves into a parliament, and passed an act by which they were indemnified for their rebellion against their late sovereign; after which, they ordered the act to be exemplified under the great seal of Scotland, that it might be producible in their justification if called for by any foreign prince. They next proceeded to the arduous task of vindicating their rebellion in the eyes of the public; and so far did they gain upon the king by the force of flattery, that he consented to summon the lords who had taken part with his father, before the parliament, to answer for their conduct. In consequence of this, no fewer than 28 lords were cited to appear at Edinburgh in the space of 40 days. The first upon the list was the lord David Lindsay, whose form of arraignment was as follows. "Lord David Lindsay of the Byres, answer for the cruel coming against the king at Bannockburn with his father, giving him counsel to have devoured the king's grace here present; and, to that effect, gave him a sword and a good horse, to fortify him against his son. Your answer hereto." Lord Lindsay was remarkable for the bluntness of his conversation and the freedom of his sentiments; and being irritated by this charge, he delivered himself in such a manner concerning the treason of the rebellious lords, as abashed the boldest of his accusers. As they were unable to answer him, all they could do was to press him to throw himself upon the king's clemency; which he refused, as being guilty of no crime. His brother, Patrick Lindsay, undertook to be his advocate, and apologized upon his knees for the roughness of his behaviour, and at last observed an informality in the proceedings of the court; in consequence of which Lindsay was released, upon entering into recognizance to appear again at an appointed day: however, he was afterwards sent prisoner by the king's order, for a whole twelvemonth, to the castle of Rothesay in the Isle of Bute.

342 Trial of Lord David Lindsay of Byres.

343 Who is imprisoned.

The regicides now endeavoured to gain the public favour by affecting a strict administration of justice. The king was advised to make a progress round the kingdom, attended by his council and judges; while, in the mean time, certain noblemen and gentlemen were appointed to exercise justice, and to suppress all kinds of disorders in their own lands and in those adjoining to them, till the king came to the age of 21. The memory of the late king was branded in the most opprobrious manner. All justices, sheriffs, and stewards, who were possessed of heritable offices, but who had taken up arms for the late king, were either deprived of them for three years, or rendered incapable of enjoying them for ever after. All the young nobility who had been disinherited by their fathers for taking arms against the late king, were, by act of parliament, restored to their several successions in the most ample manner. At last, in order to give a kind of proof to the world that they intended only to resettle the state of the nation, without prejudice to the lower ranks of subjects, who did no more than follow the examples of their superiors, it was enacted, "That all goods and effects taken from burgesses, merchants, and those who had only personal estates, or, as they are called, *unlanded men*, since the battle of Stirling, were not only to be restored, but the owners were to be indemnified for their losses; and their persons, if in custody, were to be set at liberty. Churchmen, who were taken in arms, were to be delivered over to their ordinances, to be dealt with by them according to the law." The castle of Dunbar was ordered to be demolished; and some statutes were enacted in favour of commerce, and for the exclusion of foreigners.

344 The new parliament affects popularity.

These last acts were passed with a view to recompence the boroughs, who had been very active in their opposition to the late king. However, the lords, before they dissolved their parliament, thought it necessary

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ry to give ſome public teſtimony of their diſapproving the late king's connection with England. It was therefore enacted, "That as the king was now of an age to marry a noble princeſs, *born and deſcended of a noble and worſhipful houſe*, an honourable embaſſy ſhould be ſent to the realms of France, Brittany, Spain, and other places, in order to conclude the matter." This embaſſy was to be very ſplendid. It was to conſiſt of a biſhop, an earl, or lord of parliament, a ſecretary, who was generally a clergyman, and a knight. They were to be attended by 50 horſemen; 5 000 l. was to be allowed them for the diſcharge of their embaſſy, and they were empowered to renew the ancient league between France and Scotland; and, in the mean time, a herald, or, as he was called, a *truſty ſquire*, was ſent abroad to viſit the ſeveral courts of Europe, in order to find out a proper match for the king. One conſiderable obſtacle, however, lay in the way of this embaſſy. The pope had laid under an interdict all thoſe who had appeared in arms againſt the late king; and the party who now governed Scotland were looked upon by all the powers of Europe as rebels and murderers. The embaſſy was therefore ſuſpended for a conſiderable time; for it was not till the year 1491 that the pope could be prevailed upon to take off the interdict, upon the moſt humble ſubmiſſions and profeſſions of repentance made by the guilty parties.

345 Act relative to the king's marriage.

346 They are oppoſed by the Pope.

In the mean time, the many good qualities which diſcovered themſelves in the young king began to conciliate the affections of his people to him. Being conſidered, however, as little better than a priſoner in the hands of his father's murderers, ſeveral of the nobility made uſe of that as a pretence for taking arms. The moſt forward of theſe was the earl of Lenox, who with 2000 men attempted to ſurpriſe the town of Stirling; but, being betrayed by one of his own men, he was defeated, taken unawares, and the caſtle of Dumbarton, of which he was the keeper, taken by the oppoſite party. In the north, the earls of Huntley and Marſhal, with the Lord Forbes, complained that they had been deceived, and declared their reſolution to revenge the late king's death. Lord Forbes having procured the bloody ſhirt of the murdered prince, diſplayed it on the point of a lance, as a banner under which all loyal ſubjects ſhould liſt themſelves. However, after the defeat of Lenox, the northern chieftains found themſelves incapable of marching ſouthwards, and were therefore obliged to abandon their enterpriſe. The cauſe of the murdered king was next undertaken by Henry VII. of England, who made an offer to Sir Andrew Wood of five ſhips to revenge it. The admiral accepted the propoſal; but the Engliſh behaving as pirates, and plundering indiſcriminately all who came in their way, he thought proper to ſeparate himſelf from them, yet without offering to attack or oppoſe them. Upon this, James was adviſed to ſend for the admiral, to offer him a pardon, and a commiſſion to act againſt the Engliſh freebooters. Wood accepted of the king's offer; and being well provided with ammunition and artillery, he, with two ſhips only, attacked the five Engliſh veſſels, all of which he took, and brought their crews priſoners to Leith, for which he was nobly rewarded by his majeſty.

347 Attempts to revenge the death James III.

348 Henry VII. ſends five ſhips for this purpoſe,

349 Who act piratically, and are all taken by Sir Andrew Wood.

This conduct of Wood was highly reſented by the king of England, who immediately vowed revenge. The Scottiſh admiral's ſhips had been fitted out for commerce as well as war, and Henry commanded his beſt ſea-officer, Sir Stephen Bull, to intercept him on his return from Flanders, whither he had gone upon a commercial voyage. Wood had no more than two [illegible] the ſhips with him: the Engliſh admiral had three; and [illegible] thoſe much larger, and carrying a greater weight of metal, than the Scottiſh veſſels. The Engliſh took their ſtation at the iſland of May, in the mouth of the Frith of Forth, and, having come unawares upon their enemies, fired two guns as a ſignal for their ſurrendering themſelves. The Scottiſh commander encouraged his men as well as he could; and finding them determined to ſtand by him to the laſt, began the engagement in ſight of numberleſs ſpectators who appeared on both ſides of the frith. The fight continued all that day, and was renewed with redoubled fury in the morning; but, in the mean time, the ebb-tide and a ſouth wind had carried both ſquadrons to the mouth of the Tay. Here the Engliſh fought under great diſadvantages, by reaſon of the ſand-banks; and before they could get clear of them, all the three were obliged to ſubmit to the Scots, who carried them to Dundee. Wood treated his priſoners with great humanity; and having afterwards preſented them to King James, the latter diſmiſſed them not only without ranſom, but with preſents to the officers and crews, and a letter to King Henry. To this Henry returned a polite anſwer, a truce was concluded, and all differences for the preſent were accommodated.

Sir Stephen Bull ſent againſt the Scottiſh ſhips.

351 But is [illegible] by the Scots.

James all this time had continued to diſplay ſuch moderation in his government, and appeared to have the advantage of his ſubjects ſo much at heart, that they became gradually well affected to his government, and in 1490 all parties were fully reconciled. We may from thence date the commencement of the reign of James IV.; and the next year the happineſs of his kingdom was completed, by taking off the pope's interdict, and giving the king abſolution for the hand he had in his father's death.

Tranquillity being thus reſtored, the negociations concerning the king's marriage began to take place, but met with ſeveral interruptions. In 1493, Henry VII. propoſed a match between the king of Scotland and his couſin the princeſs Catharine. James was too much attached to France to be fond of Engliſh connections, and probably thought this match below his dignity; in conſequence of which the propoſal was treated with contempt. However, notwithſtanding this ill ſucceſs, Henry made another offer of alliance with James; and, in 1495, propoſed a marriage betwixt him and his eldeſt daughter Margaret. This propoſal was accepted: but the match ſeems not to have been at all agreeable to James; for, at the very time in which he was negociating the marriage, he not only protected Perkin Warbeck, the avowed enemy and pretender to the crown of Henry, but invaded England on his account. This conduct was highly reſented by the Engliſh parliament; but Henry himſelf forgave even this groſs inſult, and the marriage negociations were once more reſumed. The bride was no more than ten years and ſix months old; and being only the fourth degree of blood from James, it was neceſſary to procure a diſpenſation from the pope. This being obtained, a treaty of perpetual peace was concluded between the two nations,

352 Marriage-treaty with England.

Scotland.

353 A perpetual peace with that nation

nations, on the 1st of July 1503, being the first that had taken place for 170 years, since the peace of Northampton, concluded between Robert I. and Edward III.

One of the great ends which Henry had in view in promoting this marriage, was to detach James from the French interest: no sooner, therefore, was the treaty signed, than he wrote to his son-in-law to this purpose; who, however, politely declined to break with his ancient ally. On the 16th of June, the royal bride set out from Richmond in Surry, in company with her father, who gave her the convoy as far as Collewston, the residence of his mother the countess of Richmond. After passing some days there, the king resigned his daughter to the care of the earls of Surry and Northumberland, who proceeded with her to the borders of Scotland. Here a number of the company were permitted to take their leave; but those who remained still made a royal appearance. At Lamberton-church they were met by James, attended by a numerous train of his nobility and officers of state. From Lamberton they proceeded to Dalkeith, and next day to Edinburgh; where the nuptials were celebrated with the greatest splendor. On this occasion, it is said that the Scots surpassed all their guests in extravagance and luxury: which must have been owing to the great intercourse and commerce which James and his subjects maintained with foreign courts and countries.

354 Magnificence of the royal nuptials.

After the celebration of the nuptials, James appears to have enjoyed a tranquillity unknown almost to any of his predecessors; and began to make a considerable figure among the European potentates. But the magnificence of his court and embassies, his liberality to strangers and to learned men, his costly edifices, and, above all, the large sums he laid out in ship-building, had now brought him into some difficulties; and he so far attended to the advice and example of his father-in-law, that he supplied his necessities by reviving dormant penal laws, particularly with regard to wardships and old titles of estates, by which he raised large sums. Though he did this without assembling his parliament, yet he found agents who justified those proceedings, in the same manner as Epson and Dudley did those of Henry, under the sanction of law. At last, however, touched with the sufferings of his subjects, he ordered all prosecutions to be stopped. He even went farther: for, sensible of the detestation into which his father-in-law's avarice had brought himself and his administration, he ordered the ministers who had advised him to those shameful courses to be imprisoned; and some of them, who probably had exceeded their commission, actually died in their confinement.

355 James becomes a powerful monarch.

About this time, James applied himself, with incredible assiduity, to the building of ships; one of which, the St Michael, is supposed to have been the largest then in the world (M). He worked with his own hands in building it; and it is plain, from his conduct, that he was aspiring to be a maritime power, in which he was encouraged by the excellent seamen which Scotland then produced. The first essay of his arms by sea was in favour of his kinsman John king of Denmark. This prince was brother to Margaret queen of Scotland; and had partly been called to the throne of Sweden, and partly possessed it by force. He was opposed by the administrator, Sture, whom he pardoned after he was crowned. Sture, however, renewing his rebellion, and the Norwegians revolting at the same time, John found himself under such difficulties, that he was forced to return to Denmark; but he left his queen in possession of the castle of Stockholm, which she bravely defended against Sture and the Swedes. This heroic princess became a great favourite with James; and several letters that passed between them are still extant. The king of Denmark, next to the French monarch, was the favourite ally of James; who, early in his reign, had compromised some differences between them. It likewise appears, from the histories of the north, that both James and his father had given great assistance to his Danish majesty in reducing the Norwegians; and he resolved to become a party in the war against the Swedes, and the Lubeckers who assisted them, if the former

356 Applies himself to maritime affairs.

(M) Of this ship we have the following account by Lindsay of Pitscottie. "In the same year, the king of Scotland bigged a great ship, called the *Great Michael*, which was the greatest ship, and of most strength, that ever sailed in England or France. For this ship was of so great stature, and took so much timber, that, except Falkland, she wasted all the woods in Fife, which was oak-wood, by all timber that was gotten out of Norway; for she was so strong, and of so great length and breadth (all the wrights of Scotland, yea, and many other strangers, were at her device, by the king's commandment, who wrought very busily in her: but it was a year and day ere she was complete); to wit, she was twelve score foot of length, and thirty-six foot within the sides. She was ten foot thick in the wall, outted jetts of oak in her wall, and boards on every side, so stark and so thick, that no cannon could go through her. This great ship cumbered Scotland to get her to the sea. From that time that she was afloat, and her masts and sails complete, with tows and anchors effeiring thereto, she was counted to the king to be thirty thousand pounds of expences, by her artillery, which was very great and costly to the king, by all the rest of her orders; to wit, she bare many cannons, six on every side, with three great bassils, two behind in her dock, and one before, with three hundred shot of small artillery, that is to say, myand and battret-falcon, and quarter-falcon, slings, pestelent serpetens, and double-dogs, with hagtor and culvering, cors-bows and hand-bows. She had three hundred mariners to sail her; she had six score of gunners to use her artillery; and had a thousand men of war, by her captain, shippers, and quarter-masters.

"When this ship past to the sea, and was lying in the road, the king gart shoot a cannon at her, to essay her if she was wight; but I heard say, it deared her not, and did her little skaith. And if any man believe that this description of the ship be not of verity, as we have written, let him pass to the gate of Tillibardin, and there, afore the same, ye will see the length and breadth of her, planted with hawthorn, by the wright that helped to make her. As for other properties of her, Sir Andrew Wood is my author, who was quarter-master of her; and Robert Bartyne, who was master-shipper."

Scotland.

former continued in their revolt. Previous to this, he sent an ambassador to offer his mediation between John and his subjects. The mediation was accordingly accepted of, and the negociations were opened at Calmar. The deputies of Sweden not attending, John prevailed with those of Denmark and Norway to pronounce sentence of forfeiture against Sture and all his adherents. In the mean time, the siege of the castle of Stockholm was so warmly pressed, that the garrison was diminished to a handful, and those destitute of all kind of provisions; so that the brave queen was forced to capitulate, and to surrender up the fortress, on condition that she would be suffered to depart for Denmark; but the capitulation was perfidiously broken by Sture, and she was confined in a monastery.

357 James assists Denmark against Sweden.

It was on this occasion that James resolved to employ his maritime power. He wrote a letter, conceived in the strongest terms, to the archbishop of Upsal, the primate of Sweden, exhorting him to employ all his authority in favour of the king; and another letter to the Lubeckers, threatening to declare war against them, as well as the Swedes, if they jointly continued to assist the rebels. According to Hollinshed, James, in consequence of king John's application, gave the command of an army of 10,000 men to the earl of Arran, who replaced John upon his throne. Though this does not strictly appear to be truth, yet it is certain, that, had it not been for James, John must have sunk under the weight of his enemies. Sture, whose arms had made great progress, hearing that a considerable armament was fitting out in Scotland, and knowing that James had prevailed with the French king to assist John likewise, agreed to release the queen, and to conduct her to the frontiers of Denmark; where he died. By this time, James's armament, which was commanded by the earl of Arran, had set sail; but perceiving that all matters were adjusted between John and the Swedes, the ships returned sooner than James expected, "which (says he, in a very polite letter he wrote to the queen upon the occasion) they durst not have done, had they not brought me an account that her Danish majesty was in perfect health and safety." The severity of John having occasioned a fresh revolt, James again sent a squadron to his assistance, which appeared before Stockholm, and obliged the Lubeckers to conclude a new treaty.

358 Chastises the Flemings and Hollanders.

James, having thus honourably discharged his engagements with his uncle the king of Denmark, turned his attention towards the Flemings and Hollanders, who had insulted his flag, on account of the assistance he had afforded the duke of Gueldres, as well as from motives of rapaciousness, which distinguished those traders, who are said not only to have plundered the Scots ships, but to have thrown their crews overboard to conceal their villany. James gave the command of a squadron to Barton; who put to sea, and, without any ceremony, treated all the Dutch and Flemish traders who fell into his hands as pirates, and sent their heads in hogsheads to James. Soon after, Barton returned to Scotland, and brought with him a number of rich prizes, which rendered his reputation as a seaman famous all over Europe.—James was then so much respected upon the continent, that we know of no resentment shown either by the court of Spain, whose subjects those Netherlanders were, or of any other power in Europe, for this vigorous proceeding.

The peace with England continued all the time of Henry VII. nor did his son Henry VIII. though he had not the same reason as his father to keep well with the Scots, for some time shew any disposition to break with them. A breach, however, did very soon take place, which was never afterwards thoroughly made up.

359 Trade of quarrel with England.

About 30 years before, one John Barton (a relation, probably, to the famous Barton) commanded a trading vessel, which was taken by two Portuguese sea-captains in the port of Sluys; and the captain, with several Scotchmen, were killed in endeavouring to defend their property. The action was esteemed cowardly as well as piratical, because it was done under the protection of a large Portuguese squadron. The ship and the remaining part of the crew, with the cargo, were carried to Portugal, from whence no redress could be obtained; and James III. granted letters of marque to John and Robert Bartons, heirs to the Barton who had been murdered. Upon the accession of James IV. to the crown of Scotland, the letters of marque were recalled, and a friendly correspondence was entered into between James and his Portuguese majesty. No redress, however, was to be had from the latter; and Robert Barton being made a prisoner, and his ship a prize, he was detained in Zealand, till James procured his deliverance, by applying in his favour to the emperor Maximilian. Sir Andrew Barton took part in the quarrel; and having obtained a like letter of marque, he made dreadful depredations on the Portuguese trade, and, according to English authors, he plundered many English ships, on pretence of their carrying Portuguese property, and made the navigation of the narrow seas dangerous to Englishmen. The court of London received daily complaints of Barton's depredations; but Henry being at this time very averse to quarrel with James, these complaints were heard with great coldness at his council-board. The earl of Surry had then two sons, gallant noblemen; and he declared to Henry's face, that while he had an estate that could furnish out a ship, or a son who was capable of commanding one, the narrow seas should not be infested. Henry could not discourage this generous offer; and letters of marque were accordingly granted to the two young noblemen, Sir Thomas and Sir Edward Howard. The prizes that Barton had taken had rendered his ships immensely rich, consequently they were heavy laden, and unfit for fighting; while we may easily suppose, that the ships of the Howards were clean, and of a superior force in every respect to those of Barton. After encountering a great deal of foul weather, Sir Thomas Howard came up with the Lyon, which was commanded by Sir Andrew Barton in person; and Sir Edward fell in with the Unicorn, Barton's other ship. The event was such as might be expected from the inequality of the match. Sir Andrew Barton was killed, while he was animating, with his whistle, his men to hold out to the last; and both the Scotch ships he had taken, were carried in triumph to London, with their crews prisoners.

END OF THE SIXTEENTH VOLUME.

E R R A T A.

Page 60. col. 1. line 30. For *retrafterent*, read *retraftarent*.
62. — 1. *dele*, at the end of line 14 from the bottom.
64. — 1. line 9. For *hat*, read *pot*.
262. col. 2. add *lity* to the end of line 20. from the bottom.
302. — 2. line 18. For *Mouffes*, read *Maiffons*.
463. — 2. — 3. from the bottom. For *excite*, read *execute*.
465. — 2. — 4. from the bottom. For $\varphi f \times \frac{CD}{CA}$ read $\varphi = f \times \frac{CD}{CA}$.
466. — 1. — 45. For *meet*, read *act*.
470. — 2. — 32. For *conftruction*, read *confideration*.
473. — 1. — 45. For *finenefs*, read *firmnefs*.
476. — 2. — 7. For *on*, read *or*.
479. — 1. — 2. from bottom. For *Bles*, read *Bled*.
482. — 1. — 29. For *Teloa*, read *Tilia*.
Do. do. — 53. For *hatchet*, read *hatchel*.
484. — 1. — 8. For *hatchet*, read *hatchel*.
486. — 1. — 16. For *cut*, read *caft*.
— — - — 47. For *ling then*, read *lengthen*.
505. — 1. — 1. For *proportions*, read *propofitions*.
506. — 2. — 12. For $\int \frac{A.CA}{CP}$ read $\int \frac{A.CA^2}{CP}$.
508. — 2. — 11. from the bottom. For *drain*, read *drum*.
509. — 1. — 20. For $\pm$, read $=$.
— — 2. — 17. For *production*, read *pendulum*.
518. — 2. — 33. For *impreffion*, read *impulfion*.
519. — 2. — 57. After A, dele *Therefore m v, which we have*.
523. — 2. — 30. For *though*, read *then*.

N. B. In the article Rotation, the fmall Italic $\int$, which has been inadvertently ufed inftead of the large $\int$, marks a fluent, or the fum of fluxionary quantities.

DIRECTIONS for placing the PLATES of Vol. XVI.

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